United States Department of the Interior
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Environmental Assessment
DOI-BLM-CO-N05-2017-0016

Livestock Grazing Permits for the
North Dry Fork, Main Dry Fork,
Segar Gulch, and Powerline Allotments
and the
Dark Canyon Pasture of the Little Hills Allotment

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U.S. Department of the Interior
Bureau of Land Management
Northwest District
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1. INTRODUCTION

1.1. Identifying Information

Project Title: Livestock Grazing Permits for the North Dry Fork, Main Dry Fork, Segar Gulch, Powerline, and the north half of the Dark Canyon Pasture of the Little Hills Allotment

Applicants and Permit Numbers:

Shults Ranch LLLP (Authorization #0501403)
- North Dry Fork allotment
- Main Dry Fork allotment
- Segar Gulch allotment
- Powerline allotment
- Dark Canyon pasture (north half) of the Little Hills allotment

Mike Lopez (Authorization #0501404)
- North Dry Fork allotment
- Main Dry Fork allotment

NEPA Document Number: DOI-BLM-CO-N050-2017-0016-EA

Location: The North Dry Fork, Main Dry Fork, Segar Gulch, and Powerline allotments along with the Dark Canyon pasture of the Little Hills allotment consist of combined total of approximately 38,910 acres of Bureau of Land Management (BLM) administered lands, 2,309 acres of private lands, and 8,932 acres of State lands. The allotments are located approximately 10-15 miles southwest of Meeker, Colorado in Rio Blanco County (see Appendix A, Map 2).

1.2. Background

Previous NEPA Analysis and Protest of the Proposed Decision

The BLM prepared an environmental assessment (EA) (DOI-BLM-CO-110-2011-0083-EA) that considered the permittees' proposed grazing schedules, continuation of current management, and a no grazing alternative. The BLM issued a proposed decision on 8/15/2016, which was protested by Wildlands Defense on 8/30/2016. The BLM prepared this (new) EA in order to resolve protest issues and to consider a "threshold and response" alternative in greater sage-grouse habitat as required by WO-IM-2016-142 (which was issued on 9/7/2016).

Multiple Grazing Authorizations in an Allotment

Livestock grazing permittees may run their operations on multiple grazing allotments. There also may be more than one permittee who is allowed to graze within an allotment (known as "in common" allotments). To provide a comprehensive evaluation of the permits held by Shults Ranch LLLP and Mr. Mike Lopez, the BLM is considering their applications at the same time since they both graze the North Dry Fork and Main Dry Fork allotments (although each operator has his own fairly specific use area).

In the North Dry Fork and Main Dry Fork allotments approximately 200 of Cross Slash Four cattle are trailed through on a designated route early each June. Both Shults Ranch and Mr. Lopez trail cattle from the North Dry Fork to the Main Dry Fork allotment as they progress through their grazing schedules. Livestock trailing associated with these allotments has been analyzed in the White River Field Office Livestock Trailing EA (CO-110-2012-0031-EA).

The Dark Canyon pasture of the Little Hills allotment is divided into two use areas where the Burke Brothers Ranch graze cattle in the south (upper) half of the pasture and Shults Ranch graze cattle in the north (lower) half of the pasture.

Percent Public Land

The percent public land in each livestock grazing allotment is a calculation of the amount of forage produced on public land in relation to the amount of forage produced on other controlled (owned or leased) lands within the allotment. The percent public land is used to calculate the number of BLM AUMs (animal unit months) which are reflected in the grazing bills. (An AUM is the amount of forage required to maintain a cow and her calf for a one month period.)

The North Dry Fork allotment includes approximately 8,932 acres of Colorado Parks and Wildlife (CPW) property that is leased to Shults Ranch and Mr. Lopez for grazing use. CPW has recently formalized lease agreements with the livestock operators for grazing use on state owned lands. The Shults Ranch lease authorizes 177 AUMs of use and the Mr. Lopez lease authorizes 181 AUMs of use both to be grazed in common with BLM lands. These AUM figures were set by CPW and are not based on forage production by land status. These agreements will result in an adjustment in the percent public land on the North Dry Fork allotment for Mr. Lopez. Shults Ranch previously had a lease agreement in place and was given credit for the AUMs associated with the leased property so the change to their percent public land will be smaller.

1.3. Purpose and Need for Action

The purpose of the action is to fully process a grazing permits (0501403-Shults Ranch, 0501404-Mr. Lopez) on the North Dry Fork, Main Dry Fork, Powerline, and Segar Gulch allotments, and the north half of the Dark Canyon pasture of the Little Hills allotment in accordance with 43 CFR 4130.2(a) which states, "Grazing permits or leases shall be issued to qualified applicants to authorize use on the public lands and other lands under the administration of the Bureau of Land Management that are designated as available for livestock grazing through land use plans." The need for the action is to respond to an application to renew the grazing permit and to identify terms and conditions for grazing use that would meet, or make substantial progress towards meeting the Colorado Public Land Health Standards, the Fundamentals of Rangeland Health (43 CFR 4180), and resource objectives in the White River Resource Management Plan.

1.4. Decision to be Made

Based on the analysis contained in this EA, the BLM will decide whether to issue livestock grazing permits for the North Dry Fork, Main Dry Fork, Segar Gulch, and Powerline allotments, and the Dark Canyon pasture of the Little Hills allotment, and if so, under what terms and

conditions. Under the National Environmental Policy Act (NEPA), the BLM must determine if there are any significant environmental impacts associated with the Proposed Action warranting further analysis in an Environmental Impact Statement (EIS). The Field Manager is the responsible officer who will decide one of the following:

- To approve the permittees' proposed livestock grazing schedules as submitted;
- To approve modified livestock grazing schedules;
- To analyze the effects of the proposed livestock grazing schedules in an EIS; or
- To deny the proposed livestock grazing schedules and not issue permits for livestock grazing.

1.5. Conformance with the Land Use Plan

The Proposed Action is subject to and is in conformance (43 CFR 1610.5) with the following land use plan:

Land Use Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP)

Date Approved: July 1997

Decision Language: "Maintain or enhance a healthy rangeland vegetative composition and species diversity, capable of supplying forage at a sustained yield to meet the demand for livestock grazing." (page 2-22)

"A minimum rest requirement (period of no livestock grazing) will be developed for each allotment as integrated activity plans are developed. This period of rest is the minimum time required to restore plant vigor, improve watershed conditions, and improve rangeland conditions. Minimum rest periods will be incorporated into grazing systems during activity plan preparation." (page 2-23)

"An average of 50 percent of the annual above ground forage production will be reserved for maintenance of the plant's life cycle requirements, watershed protection, visual resource enhancement, and food and cover requirements of small game and nongame wildlife species. The remaining 50 percent of the forage base will be allocated among predominant grazing users." (page 2-11)

Land Use Plan Amendment: Record of Decision and Approved Resource Management Plan Amendments [RMPA] for the Rocky Mountain Region, Including the Greater Sage-Grouse Sub-Regions of Lewistown, North Dakota, Northwest Colorado, Wyoming and the Approved Resource Management Plans for Billings, Buffalo, Cody, HiLine, Miles City, Pompeys Pillar National Monument, South Dakota, Worland (known as the locally as the Northwest Colorado Sage-Grouse RMPA)

Date Approved: September 2015

Decision Language: Objective RM-1: "GRSG [greater sage-grouse] objectives and well-managed livestock operations are compatible because forage availability for livestock and hiding cover for GRSG are both dependent on healthy plant communities. Agreements with partners that promote sustainable GRSG populations concurrent with sustainable ranch operations offer long-term stability. In the context of sustainable range operations, manage the range program to: 1) maintain or enhance vigorous and productive plant communities; 2) maintain residual herbaceous cover to reduce predation during GRSG nesting and early brood-rearing; 3) avoid direct adverse impacts to GRSG-associated range project infrastructure; and 4) employ grazing management strategies that avoid concentrating animals on key GRSG habitats during key seasons." (page 2-9)

MD RM-5: "(ADH [all designated habitat]) Develop specific objectives—through NEPA analysis conducted in accordance with the permit/lease renewal process—to conserve, enhance, or restore GRSG habitat. Base benchmarks on Ecological Site/Range Site Descriptions. When existing on Ecological Site/Range Site Descriptions have not been developed, or are too general to serve adequately as benchmarks, identify and document local reference sites for areas of similar potential that exemplify achievement of GRSG habitat objectives and use these sites as the benchmark reference. Establish measurable objectives related to GRSG habitat from baseline monitoring data, ecological site descriptions, or land health assessments/evaluations, or other habitat and successional stage objectives." (page 2-10)

MD RM-7: "(ADH) Include terms and conditions on grazing permits and leases that address disruptive activities that affect GRSG and assure plant growth requirements are met and residual forage remains available for GRSG hiding cover. Specify as necessary:

1. Season or timing of use
2. Numbers of livestock (include temporary non-use or livestock removal)
3. Distributions of livestock use
4. Intensity of use (utilization or stubble height objectives)
5. Kind of livestock (e.g., cattle, sheep, horse, llama, alpaca, and goat)
6. Class of livestock (e.g., yearlings versus cow/calf pairs)
7. Locations of bed grounds, sheep camps, trail routes, and the like" (page 2-10)

MD RM-8: "(ADH) Develop drought contingency plans at the appropriate landscape unit that provide for a consistent/appropriate BLM response. Plans shall establish policy for addressing ongoing drought and post-drought recovery for GRSG habitat objectives." (page 2-11)

MD RM-9: "The NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within Priority Habitat Management Areas (PHMA) would include specific management thresholds based on Table 2.3 in the Proposed Plan, Land Health Standards (43 CFR, Part 4180.2), ecological site potential, and one or more defined responses that would allow the authorizing officer to make adjustments to livestock grazing that have already been subject to NEPA analysis." (page 2-11)

1.6. Management Category

Per the RMP, all allotments in the WRFO are placed in one of three management categories (improve, custodial, or maintain) that define the intensity of management (Table 1Table 1). Allotments in the improve category are those where funding for range improvements or on-the-ground management efforts are most needed to improve the resources or to resolve serious resource conflicts. The custodial category allotments receive the lowest priority for public funding of range improvements.

Table 1. Management Category for Each Allotment

Allotment Name	Allotment Number	Management Category
Powerline	06004	Maintain
North Dry Fork	06005	Improve
Main Dry Fork	06007	Improve
Segar Gulch	06008	Improve
Little Hills (Dark Canyon Pasture)	06006	Improve

2. PUBLIC INVOLVEMENT

The BLM uses a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to identify issues, concerns, and potential impacts that require detailed analysis. Scoping is both an internal and external process.

Internal scoping was initiated when the project was presented to the White River Field Office (WRFO) interdisciplinary team on 3/16/2011. External scoping was conducted by posting this project on the WRFO's on-line National Environmental Policy Act (NEPA) register on 3/22/2011. Scoping also included various discussions and coordination meetings with the affected permittees and Colorado Parks and Wildlife (CPW) as well as meetings, site visits, and consultation with the U.S. Fish and Wildlife Service (FWS).

Issues were also identified in the 8/30/2016 protest letter from Wildlands Defense.

3. PROPOSED ACTION AND ALTERNATIVES

The Shults Ranch permit includes the North Dry Fork and Main Dry Fork allotments, which are grazed in common with Mr. Lopez. The Shults Ranch permit also includes the Powerline and Segar Gulch allotments and the north half of the Dark Canyon pasture of the Little Hills allotment, which are grazed solely by Shults Ranch cattle. The south half of the Dark Canyon pasture is grazed by cattle owned by the Burke Brothers Ranch so this proposal and analysis is only for the north half of this pasture. This permit would be issued for a ten year period.

Mr. Lopez' permit is for the North Dry Fork and Main Dry Fork allotments and would be issued for a ten year period which is consistent with the term of (and contingent upon) Mr. Lopez' base property lease that is currently through December 31, 2027.

Table 2. Current Grazing Authorization Information

Allotment Name	Permit Number	Permittee	BLM Active AUMs[1]	Suspended AUMs
Powerline	0501403	Shults Ranch	71	0
North Dry Fork	0501403	Shults Ranch	405	98
	0501404	Mr. Lopez	407	95
Little Hills	0501403	Shults Ranch	402	0
Main Dry Fork	0501403	Shults Ranch	696	72
	0501404	Mr. Lopez	660	108
Segar Gulch	0501403	Shults Ranch	1,225	239

[1]Active AUMs refers to AUMs associated with "active use" (43 CFR 4100.0-5).
[2]Suspended AUMs are the result of previous reductions in permitted use (43 CFR 4110.3-2; White River RMP page 2-23 and 2-24) and are not currently available for livestock grazing.

3.1. Alternative A – Continuation of Current Management (No Action Alternative)

The intention of the current grazing schedules was to implement a deferred rotational grazing system to modify livestock management to allow improvements in vegetation and enhance riparian resources.

- North and Main Dry Fork allotments: Shults Ranch and Mr. Lopez' cattle are to graze the North and Main Dry Fork allotments as one larger herd rotating through the allotments to create rest periods. In the North Dry Fork allotment there would be a critical growing season deferment on the east half of the allotment until June 15. The west half of the allotment would be used yearly from April 15 to June 15. Use in the east half would be limited to a 25-28 day period, then livestock would be herded to the Main Dry Fork allotment for the remainder of the grazing season with defined use areas and alternating higher/lower numbers every other year in Shults Ranch use area.

- Segar Gulch allotment: Shults Ranch livestock are to rotate through the five pastures of the Segar Gulch allotment to create a deferred rotation system. There would be growing season deferment yearly in the Joe Bush, Bear Ridge and Timber Gulch pastures, and yearly growing season deferment in the Main Hay Gulch pasture (now called the Hay Gulch (South) pasture) and yearly growing season use in the East Hay Gulch pasture (now called the Hay Gulch (North) pasture).

- Little Hills allotment: Shults Ranch livestock are to graze the Dark Canyon pasture at full numbers from mid-November until late-January one year and the next year they graze lower numbers of cattle beginning in mid-July (mid-growing season) and continuing until early January. Some of Shults Ranch livestock would spend part of the use period in the

Dark Canyon pasture and would be relocated from the Main Dry Fork allotment to the private Reed and Hunt place parcels in the Main Dry Fork allotment (these parcels are not fenced out of the allotment).

- Powerline allotment: Shults Ranch livestock are authorized to graze the Powerline allotment from mid-May through June every year.

3.1.1. Grazing Schedules

Tables 3 through 10 display the current grazing schedules for Shults Ranch in the Powerline, North Dry Fork, Main Dry Fork, Little Hills, and Segar Gulch allotments. Tables 4 through 6 display the current grazing schedules for Mr. Lopez in the North Dry Fork and Main Dry Fork allotments. The percent public land is calculated based on forage availability and slope (see Livestock Grazing, Section 5.4).

Table 3. Current Grazing Schedule for Shults Ranch within the Powerline Allotment

Allotment	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Powerline	58	Cattle	5/16	6/30	46	88	51	45	43

Table 4. Current Grazing Schedule for Shults Ranch and Mr. Lopez within the North Dry Fork Allotment

Allotment (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
North Dry Fork (Shults)	180	Cattle	4/16	7/15	91	539	74	399	140
North Dry Fork (Lopez)	127	Cattle	4/16	7/15	91	380	100	380	0
				Totals:	91	919		779	140

Table 5. Current Grazing Schedule for Shults Ranch and Mr. Lopez within the Main Dry Fork Allotment – EVEN Years

Allotment (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Main Dry Fork (Lopez)	165	Cattle	7/16	11/15	123	667	100	667	0
Main Dry Fork (Shults)	127	Cattle	7/16	11/15	123	514	100	514	0
				Totals:	123	1,181		1,181	0

Table 6. Current Grazing Schedule for Shults Ranch and Mr. Lopez within the Main Dry Fork Allotment – ODD Years

Allotment (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Main Dry Fork (Lopez)	165	Cattle	7/16	11/15	123	667	100	667	0
Main Dry Fork (Shults)	182	Cattle	7/16	11/15	123	736	100	736	0
Main Dry Fork – Reed Place (Shults)	150	Cattle	10/1	10/31	31	153	0	0	153
Main Dry Fork – Hunt Place (Shults)	150	Cattle	11/1	11/5	5	25	0	0	25
				Totals:	123	1,581		1,403	178

Table 7. Current Grazing Schedule for Shults Ranch within the Dark Canyon Pasture (North Half) of the Little Hills Allotment – EVEN Years

Pasture (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Little Hills (Dark Canyon – North Half)	55	Cattle	7/16	11/1	109	197	100	197	0
	100	Cattle	11/2	1/4	64	210	100	210	0
				Totals:	173	407		407	0

Table 8. Current Grazing Schedule for Shults Ranch within the Dark Canyon Pasture (North Half) of the Little Hills Allotment – ODD Years

Allotment (Pasture)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Little Hills (Dark Canyon – North Half)	180	Cattle	11/16	1/22	68	402	100	402	0

Table 9. Current Grazing Schedule for Shults Ranch within the Segar Gulch Allotment – EVEN Years

Pasture (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Hay Gulch (North)[1]	150	Cattle	4/16	6/30	76	375	100	375	0
Bear Ridge	150	Cattle	7/1	8/15	46	227	100	227	0
Timber Gulch	150	Cattle	8/16	8/23	8	39	100	39	0
Joe Bush	150	Cattle	8/24	9/30	38	187	100	187	0
Hay Gulch (South)[2]	150	Cattle	11/6	12/20	45	222	100	222	0
				Totals:	213	1,050		1,050	0

[1] The Hay Gulch (North) pasture was previously called the East Hay Gulch pasture.
[2] The Hay Gulch (South) pasture was previously called the Main Hay Gulch pasture.

Table 10. Current Grazing Schedule for Shults Ranch within the Segar Gulch Allotment – ODD Years

Pasture (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Hay Gulch (North)[1]	150	Cattle	4/16	6/30	76	375	100	375	0
Joe Bush	150	Cattle	7/1	8/15	46	227	100	227	0
Bear Ridge	150	Cattle	8/16	9/30	46	227	100	227	0
Timber Gulch	150	Cattle	10/1	10/7	7	35	100	35	0
Joe Bush	150	Cattle	10/8	11/5	39	143	100	143	
Hay Gulch (South)[2]	150	Cattle	11/6	12/20	45	222	100	222	0
				Totals:	259	1,229		1,229	0

[1] The Hay Gulch (North) pasture was previously called the East Hay Gulch pasture.
[2] The Hay Gulch (South) pasture was previously called the Main Hay Gulch pasture.

3.1.1. Limits of Flexibility

Permits may be provided minor flexibility during the grazing year from the approved grazing application that does not require prior approval by the authorized officer, however prior notification of the change(s) is required. This flexibility will be limited to on and off dates and the number of animals to adjust for changing climatic conditions, forage variability, and operational needs. For this permit, flexibility will be limited to 15 days either side of the on or off dates provided total days of use do not exceed 15 days from the schedule approved in the permit/lease. Flexibility does not apply to entering the Powerline, North Dry Fork or Segar Gulch allotments before the scheduled on-date unless applied for and pre-approved by the BLM. The number of animals may also be adjusted (+/-) from the approved grazing application

provided the total AUMs used does not exceed the AUMs scheduled. Annual flexibilities will be reflected in Actual Use forms submitted within two weeks from the end of the permitted grazing period.

Flexibilities that require approval by the BLM are adjustments made beyond the above criteria. BLM-approved flexibilities and/or changes to this plan may be required due to such factors as forage influences from grazing, drought, fire, and/or water availability.

3.1.2. Existing Range Improvements

There are more than 90 existing range improvement projects in these allotments that have Cooperative Maintenance Agreements in place (Map 5 and Appendix C). Cooperative Maintenance Agreements establish the responsibility of permittees to maintain each RIP. Water developments and fences are the primary RIPs in these allotments. Water developments include numerous ponds and several wells and spring developments with associated water lines, water troughs and access routes. Carrying capacity of these allotments in terms of forage availability is strongly dependent on these projects being maintained. Fences are either allotment boundary, pasture division, or drift fences. All fences must be maintained to control livestock rotation and use in each allotment.

Some examples of maintenance actions include annual fence work to keep fences clear of brush, functional and cattle tight; equipment use to remove sediment from ponds; equipment use to re-develop spring sources, replace water lines, troughs, and storage tanks. Disturbance associated with maintenance actions will be kept within existing disturbance areas. Where herbaceous vegetation is heavily disturbed by maintenance actions a BLM recommended seed mix will be applied at the appropriate time of year and noxious weeds will be controlled. Prior to performing maintenance of existing range improvement projects, if ground disturbance would occur, the permittee(s) must notify the BLM of their intent so the BLM can verify or complete adequate cultural surveys.

3.2. Alternative B – Permittees' Proposed Grazing Schedules – (Incorporates sage-grouse thresholds and responses)

The objective of the proposed grazing schedules is to implement functional grazing schedules that will allow rangelands to maintain or make progress toward meeting the Colorado Public Land Health Standards by providing adequate growth and/or regrowth opportunity for forage plants to allow them to replenish plant food reserves and produce seed to maintain the plant community. The proposed grazing schedules include deferrals and rotations to allow plant communities in each allotment or pasture opportunity for either growth prior to grazing or a regrowth and recovery period after grazing. In general the intent of the proposed grazing permits is to prevent, limit, or rotate grazing during the critical growing season to allow improvements in plant community health.

This alternative also addresses the presence of mapped sage grouse habitat in the Main Dry Fork allotment and in the Dark Canyon pasture N ½ (extreme southwest corner). Assessments (PFC)

and monitoring including AIM, HAF and utilization will be used to ensure that sage-grouse related vegetation objectives are being met in sage grouse habitat areas and nearby riparian areas.

3.2.1. Grazing Schedules

Under Alternative B, scheduled AUMs may be lower than the active preference (Table 2) based on current analysis, monitoring, and resource condition. Decisions to adjust active preference in the future will be based on a combination of trend monitoring data, land health assessment reports, riparian assessments, utilization data, and actual use data. Until additional data is available the active preference will remain unchanged but scheduled use in the North Dry Fork, Main Dry Fork, and Segar Gulch allotments and the Dark Canyon pasture will be at the lower number of AUMs shown in Tables 11 through 18.

Powerline Allotment

In comparison to current management (Alternative A), the season of use remains the same in the Powerline allotment, however the number of livestock is reduced from 58 to 54.

Table 11. Proposed Grazing Schedule for Shults Ranch within the Powerline Allotment

Allotment	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Powerline	54	Cattle	5/16	6/30	46	82	44	36	46

North Dry Fork Allotment

Proposed use in the North Dry Fork allotment would authorize grazing for the same time period as currently permitted. Two additional weeks are also scheduled to allow for a delay in moving to the Main Dry Fork allotment (see Limits of Flexibility in section 3.1.1).

Shults Ranch and Mr. Lopez both (previously only Shults Ranch) now have lease agreements in place with CPW to graze livestock on the approximately 8,932 acres of unfenced state lands within the North Dry Fork Allotment. Proposed livestock numbers listed in the grazing permits for both Shults Ranch and Mr. Lopez are based on their control of this property and would be adjusted if they lose these leases. Mr. Lopez' permitted livestock numbers will increase by 69 head because of his recent CPW lease. The percent public land calculated for both permits will be adjusted to 54 percent because of both the CPW leases and recalculation of forage production on this allotment.

Table 12. Proposed Grazing Schedule for Shults Ranch and Mr. Lopez within the North Dry Fork Allotment

Allotment (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
North Dry Fork (Shults)	180	Cattle	4/16	7/31[1]	107	633	54	342	291
North Dry Fork (Lopez)	196	Cattle	4/16	7/31[1]	107	689	54	372	317
				Totals:	107	1,322		714	608

[1] There is a two week period (7/16-7/31) where dates overlap between North Dry Fork and Main Dry Fork allotments. This additional scheduled use is strictly to allow delayed rotation as described in the Limits of Flexibility and not for increased use.

Cattle will be grazed in two separate herds that will rotate through several general use areas versus the current permit that intended to rotate all cattle through the allotment as one large herd. Annual rotations of these use areas are outlined below in Tables 13 and 14 are shown on Map 1.

Under this proposal Shults Ranch's cattle will rotate through the east half of the allotment with cattle grazing each of three general areas for 25-40 days. A two year grazing intensity rotation will occur through these three areas. When moderate intensity is scheduled, utilization in that area would average 40 to 60 percent, light intensity would average 20 to 40 percent utilization, and incidental use would average 10 to 20 percent utilization.

Table 13. Shults Ranch General Use Areas (3) on the North and East Ends of the North Dry Fork Allotment

Use Order	Use Areas	Year 1 Utilization Levels	Year 2 Utilization Levels
First	S1 – West (Rattlesnake Gulch)	Moderate	Light/Incidental
Second	S2 – Middle (Beavers Gulch)	Light	Moderate
Third	S3 – East (VT, G-bar-H)	Moderate	Light

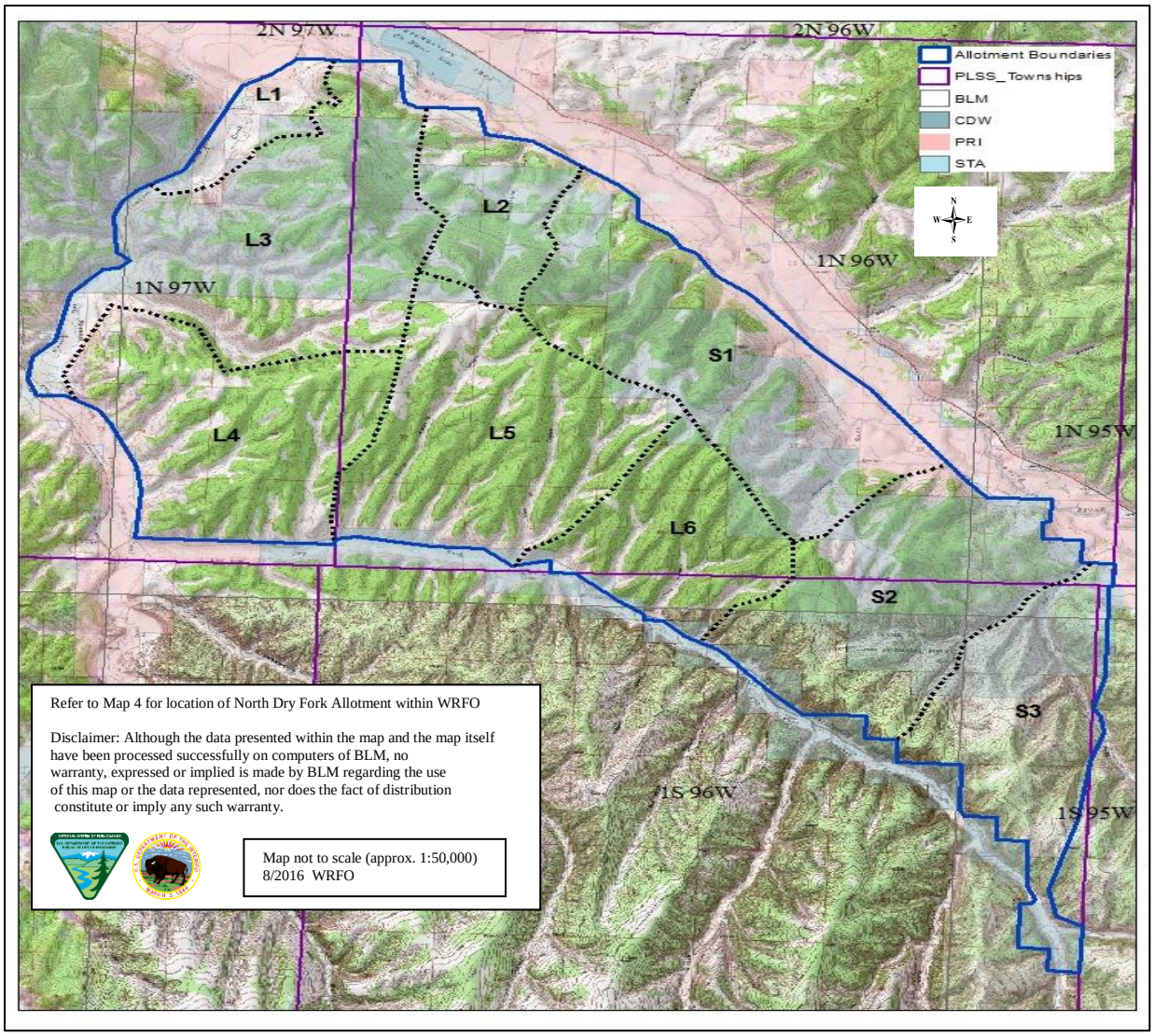
Mr. Lopez' cattle will rotate through the west half of the allotment with cattle grazing each of six general areas for 15-20 days. A three-year grazing intensity rotation will occur through these areas. The unfenced use areas are non-exclusive so there will be some livestock drift between areas and some mixing of cattle owned by different operators. When leaving the North Dry Fork allotment, both groups of cattle would be trailed through the southeast portion of the allotment through the bottom of Main Dry Fork up to separate use areas. Each year Mr. Lopez' livestock would be trailed from area L6 to the Main Dry Fork allotment.

Table 14. Mr. Lopez General Use Areas (6) on the West and South Ends of the North Dry Fork Allotment

Use Order	Year 1		Year 2		Year 3	
	Use Areas	Utilization Levels	Use Areas	Utilization Levels	Use Areas	Utilization Levels
First	L1, L3, L4	Moderate	L1, L3	Light	L1, L3, L4	Light
Second	L5, L2	Light	L2, L5	Moderate	L5, L2	Light
Third	L6	Moderate	L6	Light	L5, L6	Moderate
	L4	Light/Incidental	L4	Light/Incidental	L4	Light/Incidental

The North Dry Fork allotment contains populations of plants that are listed as threatened under the Endangered Species Act. Section 3.2.3 contains additional design features to mitigate potential impacts to these plants.

Map 1. North Dry Fork Proposed General Use Areas



Main Dry Fork Allotment

After trailing into the Main Dry Fork allotment through the northwest portion of the allotment, cattle graze in two separate groups in two primary use areas for a possible total of 123 days. Grazing use in the area along the Dry Fork of Piceance (in the northern part of the allotment) is controlled by drift fences, allowing this area to have limited use. General grazing use along the Dry Fork of Piceance Creek is limited to brief trailing use by Cross Slash Four cattle and several days grazing use by Shults Ranch and Mr. Lopez cattle as they are pushed through in mid to late July, headed to their respective use areas. There are also several days of grazing use in this area as cattle are trailed out in the fall. Proposed grazing schedules accommodate the presence of sage-grouse habitat in this allotment. Grazing use would not occur until after the nesting period and later in the brood rearing timeframe and grazing in the riparian area of the Dry Fork Piceance Creek would be limited. Thus, there is no specific sage-grouse alternative but monitoring, thresholds, and responses are incorporated in this alternative.

Shults Ranch's cattle spend the majority of the use period in the southern part of the allotment that includes the private parcel referred to in Alternative A as the Reed place and later they move northwest to the area that includes the Hunt Place. Under Alternative A, these parcels were incorrectly treated as fenced private property and not part of the allotment.

Mr. Lopez' cattle graze in the northwest half of the allotment in Post and Corral Gulch areas. As groups of Mr. Lopez' cattle drift down toward the Main Dry Fork area they would be removed and put into Mr. Lopez' adjacent allotment (Segar Mountain) or trucked out.

Due to adjustments in the allotment (i.e., giving credit for unfenced Shults Ranch private land (known as the Hunt Place and the Reed Place) within the allotment and recalculation of forage production with consideration to slope), Shults Ranch percent public land has changed from 100 percent on the previous permit to 83 percent on the proposed permit. Mr. Lopez' percent public land remains at 100 percent.

Table 15. Proposed Grazing Schedule for Shults Ranch and Mr. Lopez within the Main Dry Fork Allotment

Allotment (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Main Dry Fork (Shults)	180	Cattle	7/16	10/31	108	639	83	530	109
Main Dry Fork (Shults)	100	Cattle	11/1	11/15	15	49	83	41	8
Main Dry Fork (Lopez)	163	Cattle	7/16	9/23	70	375	100	375	0
Main Dry Fork (Lopez)	120	Cattle	9/24	10/30	37	146	100	146	0
Main Dry Fork (Lopez)	60	Cattle	10/31	11/15	16	32	100	32	0
				Totals:	123	1,241		1,124	117

Segar Gulch Allotment

The proposed use is similar to current management using the four separate pastures (Hay Gulch, Joe Bush, Bear Ridge, and Timber Gulch) and is shown below in Tables 16 and 17. Cattle would generally graze the one half of the Hay Gulch pasture from late April through June and then move to the other half of the pasture for most of July. From the Hay Gulch pasture livestock would be moved next to the Joe Bush or Bear Ridge pasture on an alternate year basis. The Timber Gulch (riparian) pasture would be grazed each year for approximately 6 days in either late August or early October.

Table 16. Proposed Grazing Schedule for Shults Ranch within the Segar Gulch Allotment – EVEN Years

Pasture (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Hay Gulch (South)	150	Cattle	4/25	6/30	67	330	100	330	0
Hay Gulch (North)	150	Cattle	7/1	7/20	20	99	100	99	0
Bear Ridge	150	Cattle	7/21	8/18	29	143	100	143	0
Timber Gulch	150	Cattle	8/19	8/24	6	30	100	30	0
Joe Bush	150	Cattle	8/25	10/6	43	212	100	212	0
				Totals:	165	814		814	0

Table 17. Proposed Grazing Schedule for Shults Ranch within the Segar Gulch Allotment – ODD Years

Pasture (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Hay Gulch (North)	150	Cattle	4/25	6/30	67	330	100	330	0
Hay Gulch (South)	150	Cattle	7/1	7/20	20	99	100	99	0
Joe Bush	150	Cattle	7/21	8/27	38	187	100	187	0
Bear Ridge	150	Cattle	8/28	9/30	34	168	100	168	0
Timber Gulch	150	Cattle	10/1	10/6	6	30	100	30	0
				Totals:	165	814		814	0

Dark Canyon Pasture of the Little Hills Allotment

Unlike in Alternative A, grazing use would be limited to dormant season use (November and December) yearly. Usually snow depth requires that cattle be removed by mid-December. Proposed grazing schedules accommodate the presence of sage-grouse habitat in this pasture with grazing use scheduled to occur well after sage grouse brood rearing has ended. Thus, there is no specific sage grouse alternative but monitoring, thresholds, and responses are incorporated in this alternative to ensure adequate residual herbaceous material remains.

Table 18. Proposed Grazing Schedule for Shults Ranch within the Dark Canyon Pasture (North Half) of the Little Hills Allotment

Pasture (Permittee)	Livestock		Date		# Days Grazed	Total Active AUMs	% Public Land	BLM AUMs	Private AUMs
	Number	Kind	On	Off					
Little Hills (Dark Canyon – North Half)	80	Cattle	11/1	1/1	62	163	100	163	0

3.2.2. Range Improvement Projects

Implementation of the grazing schedules in either Alternative A or B would require the use and maintenance of the existing range improvements identified in Section 3.1.1.

In addition, Shults Ranch has requested to maintain the existing "North CC Trail" (constructed in ~1965 by a small dozer or crawler) from T1S R96W Sec 13 SE to T1S R95W Sec 7 SW. Maintenance of this trail would provide access to and facilitate maintenance of the Hay Gulch Well (RIP#204393). If approved for maintenance, this trail would be added to the cooperative maintenance agreement of the Hay Gulch Well as part of overall maintenance responsibilities. Maintenance would be limited to the minimum amount of disturbance necessary to get a small tractor and new water tank down to the well site. Maintenance would include using a backhoe or tractor bucket to remove sloughed material from the trail. This material would be used to fill eroded places. Maintenance would be timed to occur in the fall, so that the BLM standard Seed Mix #3 shown in Table 19 could be applied to freshly disturbed areas sometime after September 1 and before March 15.

Table 19. BLM Standard Seed Mix #3

Cultivar	Common Name	Scientific Name	Application Rate (lbs PLS/acre)
Rosana	Western Wheatgrass	*Pascopyrum smithii*	4
Whitmar	Bluebunch Wheatgrass	*Pseudoroegneria spicata* ssp. *inermis*	3.5
Rimrock	Indian Ricegrass	*Achnatherum hymenoides*	3
	Needle and Thread Grass	*Hesperostipa comata* ssp. *comata*	2.5
Maple Grove	Lewis Flax	*Linum lewisii*	1
	Scarlet Globemallow	*Sphaeralcea coccinea*	0.5

Several future project proposals have been made that would improve livestock management in these allotments. Mr. Lopez has proposed two different spring development projects in the North Dry Fork allotment on CPW property that could have waterlines extend out onto BLM administered lands. Shults Ranch is also pursuing opportunities to develop upland water sources in the Timber Gulch and Bear Ridge pastures of the Segar Gulch allotment, as well as maintenance of some existing water developments to improve distribution away from the riparian area. All of these and future projects are contingent upon cultural clearances and will be

evaluated in future NEPA documents. No new range improvement projects are proposed at this time.

3.2.3. Design Features for Threatened Plants in the North Dry Fork Allotment

On August 8, 2013, staff from the United States Fish and Wildlife Service (FWS), BLM staff from the range management and ecology programs, and the livestock operator (Mr. Lopez) met and conducted a field tour of known locations with threatened plants and developed the following applicant committed conservation measures to mitigate known and potential livestock related impacts to these plant populations.

Future surveys of plant populations will be conducted to assess effectiveness of mitigation measures. If design features are inadequate or if impacts to any of the three plant populations occur that were not analyzed within the current Section 7 consultation, consultation will be reinitiated to mitigate impacts.

1. The BLM will provide maps to permittees that identify sensitive areas where restrictions may apply to particular grazing-related activities for the Dudley Bluffs twinpod (including a 100 meter (328 foot) buffer around occurrences). Maps provided to permittees will include sufficient buffers to avoid disclosing exact species locations.

2. The BLM will monitor the current known twinpod populations within the North Dry Fork allotment (Alkali Flat East, Piceance State Wildlife Area West, Piceance State Wildlife Area East) bi-annually for impacts from livestock grazing. The BLM will develop a monitoring summary to document monitoring efforts.

3. No concentrations of livestock activities (including but not limited to herding, bedding, trailing, salt or supplement placement, portable watering, and new stock ponds) will be allowed within 200 meters (656 feet) of individual plants or populations. However, concentration may be allowed where separated by a fence or topographic feature (cliff) that will render the impacts to listed plants insignificant, discountable, or if the impacts are wholly beneficial (distribute livestock away from listed plants).

4. At the Alkali Flat East twinpod population where livestock were previously documented trailing through a population of twinpod, the livestock operator for that portion of the allotment has committed to maintain an existing short section of drift fence on BLM land. The permittee will additionally install a short section of drift fence on the adjacent private land. These two short sections of drift fence would eliminate cattle access to the twinpod population and prevent future livestock trailing through that population (map of the drift fence locations is included in the decision file for this action).

5. At the Piceance State Wildlife Area East twinpod location where livestock currently trail near a population of twinpod to use a temporary water tank placed near a washed out spring development on CPW land, the livestock operator has committed to move the

temporary water tank approximately 200 meters (656 feet) to the north or south by the next grazing season to reduce concentration while trailing in this area. This tank will only be in place for the three to four weeks that livestock are grazing in this area.

6. The permittee will modify trailing/herding actions in areas of listed plants to reduce the number of livestock that leave the roadway or trail (e.g., pushing cattle through at a pace that results in more of them staying on the roadbed, using more herders, placing natural temporary barriers on existing trails while trailing occurs in the area). This would help reduce trailing related disturbance on the toe-slope areas where plants occur.

7. The permittee is required to notify the BLM Rangeland Management Specialist prior to any surface disturbing range project maintenance activities that are within 200 meters of occupied or suitable habitat. Surveys and avoidance measures will be required where effects to listed plants may occur. Construction of new range developments (e.g., fences, ponds, water troughs) would be placed and designed to avoid impacts to listed species. New range developments that may affect listed species (within 200 meters, 656 feet) would not be permitted until completion of additional consultation with the FWS.

8. In the future where new listed plant populations are discovered and mapped within the North Dry Fork allotment, additional conservation measures and monitoring may be developed in cooperation with FWS to address if livestock grazing is having negative impact on the new populations. All conservation measures outlined in this Biological Assessment will apply to new discovered plant populations within the North Dry Fork allotment.

9. If a permittee wants to apply herbicides on BLM lands, they must obtain prior approval from the BLM. Appropriate applicator licenses must be obtained, copies of the appropriate *Pesticide Use Proposal* must be obtained from the BLM, and a *Pesticide Application Record* must be completed and returned to BLM no later than 10 days after herbicide application (standard for all BLM allotments). The permittee must consult with the BLM Rangeland Management Specialist and Botanist/Ecologist prior to applying herbicides or pesticides on BLM land. All treatments will comply with buffers listed in Table 20 below (from page 49 of the WRFO Integrated Weed Management Plan (IWMP)).

Table 20. Herbicide Buffer Distances from Terrestrial Special Status Plant Species1

Active Ingredient	Buffer Width	Method(s) to Which Applied
2,4-D	0.5 mile	All
Bromacil	1,200 feet	All
Chlorsulfuron	1,200 feet	Ground
	1,500 feet	Aerial
Clopyralid	900 feet	Ground, typical rate
	0.5 mile	Ground, maximum rate; aerial
Dicamba	1,050 feet	Ground
Diflufenzopyr	100 feet	Low boom, typical rate
	500 feet	Low boom, maximum rate; high boom
	900 feet	Aerial
Diquat	900 feet	Ground, typical rate
	1,000 feet	Ground, maximum rate
	1,200 feet	Aerial
Diuron	1,100 feet	All
Fluridone	0.5 mile	All
Glyphosate	50 feet	Ground, typical rate
	300 feet	Ground, maximum rate; aerial
Hexazinone	300 feet	Ground, typical rate
	900 feet	Ground, maximum rate
Imazapic	25 feet	Ground, typical or maximum rates
	300 feet	Aerial, typical rate
	900 feet	Aerial, maximum rate
Imazapyr	900 feet	Ground or aerial, typical rate
	0.5 mile	Ground or aerial, maximum rate
Metsulfuron Methyl	900 feet	Ground or aerial, typical rate
	0.5 mile	Ground or aerial, maximum rate
Overdrive®	100 feet	Low boom, typical rate
	900 feet	Low boom, maximum rate; high boom
Picloram	0.5 mile	All
Sulfometuron Methyl	1,500 feet	All
Tebuthiuron	25 feet	Low boom, typical rate
	50 feet	Low boom, maximum rate; high boom, typical rate
	900 feet	High boom, maximum rate
Triclopyr	300 feet	Ground, typical rate
	500 feet	Aerial, typical rate
	0.5 mile	Ground or aerial, maximum rate

[1] Source: BLM 2007a

10. At the Piceance State Wildlife Area East twinpod location, which is located on CPW land, the permittee and BLM will coordinate with CPW to prioritize treatment of a leafy spurge infestation down slope from the twinpod population to prevent leafy spurge from spreading up slope into the occupied twinpod population.
    - Spot spraying with backpack sprayers would be the recommended method of treatment for weed control on the leafy spurge.
    - It is recommended that all applicators will be trained in proper identification of Dudley Bluff twinpod in order to avoid plants being sprayed. In order to ensure no twinpods are sprayed, spray applicators will identify with flagging all the leafy spurge plants prior to spraying, and mark all twinpod plants within 100 meters of spraying location with a different color of flagging.
    - 100 meter buffers; mid-late June spray Tordon 2 quarts/ac.
    - 100 meter buffers; fall spray Plateau 8-12oz/backpack sprayer
    - No more than 5 twinpod plants will be sprayed within 15 feet of leafy spurge.

11. Within 200 meters (656 feet) of listed plants, motorized access for livestock grazing operations will be limited to existing roads and routes. Any additional access proposed for grazing operations would require additional surveys and Section 7 Consultation with the FWS.

12. Trailing along the "VT" trail through the North Dry Fork allotment (map in Biological Assessment document) will be allowed along the already consulted route. Consultation for this livestock trail was already performed and a Biological Opinion was received from FWS dated February 15, 2013.

13. Small drift fences or natural barriers (i.e., cut trees) may be considered in certain areas where individual plants or populations require protections from livestock grazing or associated activities. For plant populations located on Piceance State Wildlife Area, the BLM will work cooperatively with CPW throughout the life of this and future permits to determine the best method for protecting plants from livestock grazing.

3.2.4. Monitoring, Thresholds, and Management Responses

Monitoring - To ensure the greater sage-grouse habitat objectives are being met, the BLM will continue to use the Assessment, Inventory, and Monitoring (AIM) methodology for vegetation monitoring and the Habitat Assessment Framework (HAF) for habitat suitability ratings. AIM and HAF assessments will be conducted approximately every five years to ensure livestock grazing is not contributing to the degradation of habitat. If it is determined that habitat suitability is on a downward trend and grazing is the causal factor, the BLM will coordinate with the permittee to develop and implement changes to the grazing schedule to make progress toward meeting sage-grouse habitat objectives. These changes could include, but are not limited to, adjustments in livestock numbers or season of use. Changes in the grazing schedule that are outside of this current analysis would be analyzed in a new NEPA document.

Thresholds - Under this alternative, two thresholds will be established to ensure grazing use remains compatible with meeting sage-grouse habitat objectives into the future in designated PHMA. These thresholds are related to drought and utilization in the Main Dry Fork allotment and Dark Canyon pasture (north half).

The 1997 White River ROD/RMP sets utilization limits at 40-60% in key forage areas depending on the time of year the allotment is being grazed. On the Main Dry Fork allotment and the Dark Canyon pasture (north half), utilization will be limited to 50 percent in key forage areas in the uplands within PHMA and riparian areas along the Dry Fork of Piceance Creek. This threshold is to ensure adequate residual cover remains after grazing for soil protection and for concealment of sage-grouse during nesting and brood rearing periods the next spring and early summer.

Responses - Utilization data gathered near the end of the use period that exceeds the 50 percent threshold will trigger two responses. First, livestock will be removed at that time. Second, actual use at that point in time will be used to adjust the next grazing seasons livestock numbers and or use period to a level that will likely result in use below the 50 percent threshold.

Utilization monitoring will be a collaborative effort between the BLM and the grazing permittee. The BLM rangeland management specialist and grazing permittee will go into the field jointly the first fall after implementation of this alternative to select appropriate sites in the uplands and riparian area and to educate the permittee on assessing utilization. In subsequent years, the permittee and/or BLM staff will monitor utilization near the end of the use period in the Main Dry Fork and Dark Canyon pasture (north half).

3.2.5. Response to Drought Conditions

For both grazing alternatives when there are indications of below normal precipitation, the permittee and the BLM would assess local conditions and outlooks to determine what adaptive management adjustments are needed (including, but not limited to, pasture deferment, rest, modified livestock grazing rotation, change in livestock numbers).

The Society for Range Management has defined drought as receiving 75% or less precipitation than the long-term average (SRM 1989). More specific definitions and criteria can be found from the USDA/NOAA Drought Monitor and Svoboda et al. (2002).

The BLM would use precipitation in conjunction with drought condition and outlook predictions from the USDA/NOAA Drought Monitor (http://droughtmonitor.unl.edu/) to determine climatic conditions in the area of the allotments. The long-term average precipitation amount for each month and season would be calculated for the affected allotments using data collected from the Rangely Western Regional Climate Center (WRCC) weather station and the most appropriate and proximate remote automated weather station (RAWS) and a BLM precipitation gauge located in Timber Gulch. For these allotments precipitation will be analyzed from the period between January 1st to March 31st prior to livestock turnout. After livestock turnout and through the use period, precipitation and vegetation conditions will continue to be monitored to ensure continued rangeland health.

Although drought identification would be based on the Drought Monitor, the actual management actions would be based on site-specific conditions within the allotments as shown in Table 21.

Table 21. Drought Conditions and Grazing Management Response

Current Precipitation	Condition	Grazing Management Response	Additional Considerations
75-125% of long-term average	Normal (No Drought)	Follow normal grazing schedule with normal utilization targets.	Conduct visual assessments of utilization and track precipitation. Consider timing of precipitation and assess vegetation conditions when planning current year's use. Adjust rotations as needed to stay within utilization targets.
Less than 75% of long-term average	Abnormally Dry to Moderate Drought	Coordinate to schedule reduced numbers and adjust grazing schedules to rotate through pastures such that utilization averages 40 percent, potentially leaving each allotment early	Continue to monitor utilization and precipitation. Consider timing of precipitation and vegetation conditions when planning current year's use. Communicate altered rotations needed to achieve desired utilization levels.
Less than 65% of long-term average with a prediction of drought to continue or become more severe	Severe to Exceptional Drought	Coordinate to schedule substantially reduced numbers and to adjust grazing schedules to rotate through allotments/pastures such that utilization averages 40 percent, potentially leaving allotments early.	Consider complete rest/deferment until perennial grasses have produced mature seed or until key forage species are dormant. To allow improved recovery, plan the following year's grazing at no more than 50 percent of the drought year's reduced levels

3.3. Terms and Conditions Applicable to Alternatives A and B

Livestock grazing permits and leases must specify terms and conditions pursuant to 43 CFR 4130.3, 4130.3-1, and 4130.3-2. The Standard Terms and Conditions that are applied to every permit in Colorado are listed in Appendix B.

Livestock grazing permits may also contain site-specific terms and conditions "determined by the authorized officer to be appropriate to achieve management and resource conditions objectives", to ensure conformance with Colorado Public Land Health Standards and Fundamentals of Rangeland Health, and to "assist in the orderly administration of the public rangelands" (43 CFR 4130.3, 4130.3-2). The following terms and conditions would apply to both Alternatives A and B. Additional terms and conditions may be identified through the impacts analysis in this EA as mitigation measures necessary to meet resource objectives and may be added to the grazing permit in the final decision.

1. In order to improve livestock distribution on the public lands, no salt blocks and/or mineral supplements will be placed within ¼ mile of any riparian area, wet meadow, watering facility (either permanent or temporary), or rock outcrop formations unless stipulated through a written agreement or decision. (43 CFR 4130.3-2(c))

2. Livestock Grazing Utilization Guidelines. Average utilization levels by livestock should not exceed:
    a. Key Grass Species
        i. 40% on key grass species for the grazing period from April 1 to June 15
        ii. 40-60% for the grazing period from June 15 to September 15
        iii. 60% for the grazing period from September 15 to March 31
    b. Key Browse Species
        i. 40% for the grazing period from April 1 to September 30
        ii. 50-60% for the grazing period from October 1 to March 31

3. Livestock grazing on the allotments listed on this permit will be managed to achieve the Colorado Public Land Health Standards. Grazing use (AUMs used) will depend on annual forage availability and will require reductions when forage production is below average. Livestock grazing may be temporarily delayed, discontinued, or modified to allow for the reproduction, establishment or restoration of plant vigor, provide for the improvement of riparian areas to achieve Proper Functioning Condition (PFC), or for the protection of other rangeland resources and values consistent with objectives of applicable land use plans or to prevent compaction of wet soils (such as where delay of spring turn out is required because of weather conditions or lack of plant growth).

4. Maintenance of all structural rangeland improvement projects and other projects are the responsibility of the permittee to which they have been assigned. Maintenance will be in accordance with cooperative agreements and/or range improvement permits (43 CFR 4120.3-1). Failure to maintain assigned projects in a satisfactory/functional condition may result in authorization to graze a reduced number of livestock until maintenance is completed. Construction of new range improvements on BLM administered lands is prohibited without approval from the authorized officer.

5. Noxious weed infestations on the affected allotments and/or pastures shall be treated in a manner consistent with BLM protocol as outlined in the White River Integrated Weed Management Plan. For noxious weed populations on BLM administered lands, weeds will be treated by a certified pesticide applicator hired by the permittee, or by the BLM. The permittee will be responsible for coordinating and implementing appropriate weed control measures where livestock grazing practices result in the spread of noxious weeds on BLM lands.

6. The permittee/lessee shall provide reasonable administrative access across private and leased lands to the BLM for the orderly management and protection of public lands. (43 CFR 4130.3-2(h))

7. Thirty days prior to turnout, the permittee/lessee will submit a plan of operation (grazing application) for the grazing year to the BLM for approval. The plan of operation will include the anticipated turnout dates, numbers of animals, and the sequence that the allotments and/or pastures will be used.

8. The permittee/lessee will be required to submit actual grazing use records 15 days after the end of grazing. (43 CFR 4130.3-2(d))

9. The permittee/lessee is responsible for informing all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts.

10. If any archaeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archaeologist will be notified immediately. Work may not resume at that location until approved by the authorized officer (AO). The permittee/lessee will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation option within 48 hours of the discovery. The permittee/lessee, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.

11. Pursuant to 43 CFR 10.4(g), the permittee/lessee must notify the AO, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), the operator/holder/applicant must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.

12. The permittee/lessee is responsible for informing all persons who are associated with allotment operations that they will be subject to prosecution for disturbing or collecting vertebrate or other scientifically-important fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposes on public lands. If any paleontological resources are discovered as a result of operations under this authorization, the permittee/lessee must immediately contact the appropriate BLM representative.

3.4. Alternative C – No Livestock Grazing

No livestock grazing would be authorized on the Powerline (06004), North Dry Fork (06005), Main Dry Fork (06005), Segar Gulch (06008) allotments, and the north half of the Dark Canyon pasture of the Little Hills allotment (06006). The grazing permits held by Shults Ranch (0501403) and Mr. Lopez (0501404) for these allotments would not be renewed. Existing range

improvements would not be maintained or removed. This alternative would not be in compliance with the 1997 White River RMP decision to provide for livestock grazing as one of the acceptable multiple uses.

3.5. Alternatives Considered but Eliminated from Detailed Analysis

No Livestock Grazing and Removal of Range Improvement Projects

Under this alternative, the BLM would not permit livestock grazing (passive restoration) and would provide for active restoration and removal of all range improvement projects (such as fences and water developments) in the allotment and reclamation of access routes to those facilities. The BLM eliminated this alternative from detailed analysis since the allotment is available for livestock grazing (per the 1997 White River RMP) and removal of all range improvement projects within the allotment would hinder the BLM's ability to manage livestock within the allotment. Range improvements are necessary for livestock grazing since fences serve to control livestock movements between pastures/allotments and water developments help to promote distribution of livestock (and associated forage consumption) within pastures/allotments.

Active Restoration of Areas with Non-Native Vegetation

Under this alternative, the BLM would provide for active restoration of areas with non-native vegetation (such as crested wheatgrass seedings or areas with cheatgrass or non-native, invasive species). The BLM eliminated this alternative from detailed analysis since vegetation treatments are outside the scope of this EA (refer to the purpose and need statement). The WRFO's Integrated Weed Management Plan (IMWP) (DOI-BLM-CO-110-2010-005-EA and DOI-BLM-CO-NO5-2016-0069-EA) provides direction for management of non-native, invasive species through biological, chemical, and mechanical control methods. Vegetation treatments that expand on techniques identified in the IWMP would be addressed through a site-specific NEPA review.

Alternative Thresholds to Identify Appropriate Levels of Livestock Grazing

Under this alternative, the BLM would use various benchmarks or thresholds to determine the livestock carrying capacity within the allotment. Wildlands Defense has previously suggested in other allotments that the BLM consider standards such as 1) retaining 9 inches of residual native grass across upland sites and 6 inches of stubble height on riparian sites, 2) not allowing grazing more than one time in an allotment per grazing year, 3) using a 10-15% utilization rate, 4) requiring less than 5% trampling per square meter, and 5) limiting sagebrush and riparian shrub browsing to 5% of new growth. They recommend that if any of these standards are exceeded in any year, then livestock should be reduced by 25-50% for each "violation" and livestock grazing ended if standards are exceeded in multiple years during the term of the permit. The BLM eliminated this alternative from detailed analysis since it is "substantially similar in design to an alternative that is analyzed" (BLM NEPA Handbook, Section 6.6.3). In essence, this alternative requires monitoring of range condition and then reductions in livestock use if minimum conditions are not met. There are numerous metrics that could be used to evaluate livestock

impacts. Both Alternative A and B include specific terms and conditions using standard monitoring protocols such as Assessment, Inventory, and Monitoring (AIM) transects for uplands; Habitat Assessment Framework (HAF) for sage-grouse habitat; and PFCfor riparian areas. Trend sites are monitored using the protocol developed in the Grazing Allotment Monitoring Plan for the White River Resource Area. Target utilization levels of an average of 50 percent of the annual above ground forage production were established in the 1997 White River RMP (see RMP pages 2-11 and 2-13). To ensure that sage-grouse habitat objectives (specifically nesting and brood rearing cover) are met, Alternative B includes specific monitoring thresholds and responses using the same metrics and utilization data from targeted sites that would trigger immediate changes in livestock use in the Main Dry Fork allotment and Dark Canyon pasture.

4. ISSUES

The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 22 lists the resources considered and the determination as to whether they require additional analysis.

Table 22. Resources and Determination of Need for Further Analysis

Determination[1]	Resource	Rationale for Determination
Physical Resources		
NI	Air Quality	The environmental consequences to air quality from the proposal to continue current livestock grazing could include the periodic and local production of dust due to livestock trailing and emissions from vehicles used to manage grazing. Dust levels may be noticeable locally and especially during drier times. The Colorado Air Pollution Control Division (APCD) estimates the maximum particulate matter 10 micrometers or less (PM10) levels (24-hour average) in rural portions of western Colorado to be near 50 micrograms per cubic meter (μg/m3). The increase in airborne particulate matter expected from continued livestock grazing within the allotment is not expected to exceed Colorado ambient air quality (CAAQ) or NAAQ standards on an hourly, 8-hour average or daily basis.
NI	Geology and Minerals	The renewal of grazing permits and revisions to grazing would have little to no impacts to the geologic and mineral resources in the associated area.
NI	Climate Change	The issue of climate change and its relationship to the proposed action of issuing grazing permits is twofold. Livestock grazing contributes carbon dioxide and methane emissions to the earth's atmosphere. In addition, climate change is a stressor on native vegetation communities. The science on predicting future climate conditions is continuously evolving. Land management actions

Determination[1]	Resource	Rationale for Determination
		might contribute to changes in atmospheric greenhouse gas levels, which can affect global climate. Addressing effects on greenhouse gas (GHG) levels is difficult due to the lack of explicit regulatory guidance on how to meaningfully apply existing NEPA regulations to this evolving issue and due to the continuously evolving science available at varying levels. The proposed action and alternatives, when implemented, would not have a clear, measurable cause-and-effect relationship to climate change because the available science cannot identify a specific source of greenhouse gas emissions, such as those from livestock grazing, and tie it to a specific amount or type of changes in climate. Therefore, the effects of livestock grazing to the global climate will not be analyzed in detail in this EA. Effects of climate change (such as drought and increases in weeds) on native perennial vegetation resources are discussed in the vegetation and invasive, non-native species sections of the EA.
PI	Soil Resources*	See discussion below.
PI	Floodplains, Hydrology, and Water Rights	Refer to the analysis in Section 5.8 (Surface and Groundwater Quality) and Section 5.7 (Riparian Areas and Aquatic Wildlife) for discussion of potential impacts to the floodplain and stream channel hydrology. The impacts to these reference resources would be expected to be the same to the floodplain and channel hydrology since this is considered the wetlands and riparian zones for these allotments. Of the approximately 183 springs located within the affected allotments, 133 have water rights (based on BLM WRFO Spring and Well database, 2015). No additional water developments are planned as parts of this permit renewal. Potential impacts to the existing water rights associated with the existing springs are discussed in Section 5.8 including the potential for diminished flow if streams continue to become more entrenched.
PI	Surface and Ground Water Quality*	See discussion below.
Biological Resources		
PI	Wetlands and Riparian Zones*	See discussion below.
PI	Vegetation*	See discussion below.
PI	Invasive, Non-native Species	Invasive, non-native weed species are discussed in the vegetation section.
PI	Special Status Animal Species*	There are no threatened or endangered animal species that are known to inhabit or derive important use from the project area. BLM sensitive species that are potentially occur or do occur in the project area include greater sage-grouse, Brewer's sparrow, northern goshawk, flannelmouth sucker, and northern leopard frog. Brewer's sparrow and northern goshawk are discussed in the Raptors and Migratory Birds section. Flannelmouth sucker and northern leopard frogs are discussed the Riparian Areas and Aquatic Wildlife section.

Determination[1]	Resource	Rationale for Determination
PI	Special Status Plant Species*	See discussion below.
PI	Migratory Birds	See discussion below.
PI	Aquatic Wildlife*	Aquatic species will be discussed in the Special Status Animal Species section.
PI	Terrestrial Wildlife*	See discussion below.
NP	Wild Horses	The proposed grazing permit renewals are not located within the Piceance-East Douglas Herd Management Area (PEDHMA) or either of the Herd Areas (North Piceance or West Douglas) therefore there are no impacts to wild horses. However, wild horses have been documented in the North Dry Fork Allotment (outside of the PEDHMA) in fall of 2011. In 2015 a new fence was constructed in this area on the west side of RBC Rd 5 that should reduce the potential for horses to leave the PEDHMA here. Additionally, NEPA analysis (DOI-BLM-CO-110-2012-0062-CX) for a cattle guard through the North Dry Fork allotment boundary fence has been completed so if there still appears to be a need, a cattle guard can be installed to replace the gate here.
Heritage Resources and the Human Environment		
PI	Cultural Resources	See discussion below.
NI	Paleontological Resources	Paleontological materials (fossils) are not considered to be endangered by normal grazing activities. Direct impacts to fossil materials may occur in areas of livestock concentration and can include damage or destruction of fossils and overall disturbance of the stratigraphic context in which they are located. Because in situ fossils are seldom encountered in alluvial areas where cattle tend to concentrate, the potential for damage to undisturbed fossil remains low. No range construction projects that have the potential to create disturbance will be permitted without paleontological clearance in advance. No animal supplements such as salt blocks or water tanks should be placed near any outcrop formations.
NI	Native American Religious Concerns	No Native American religious concerns are known in the area, and none have been noted by Tribal authorities. Should recommended inventories or future consultations with Tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures may be undertaken.
NI	Visual Resources	The alternatives are consistent with the existing visual character of the area and will not introduce any discernible change.
NP	Hazardous or Solid Wastes	There are no known hazardous materials, wastes, or dump sites known within the allotment. No listed or extremely hazardous materials are proposed for use in any of the alternatives. Applications of pesticides would be in compliance with BLM requirements and allowed under a separate authorization. If the permittee suspects the release of any chemical, oil, solid waste, petroleum product, or sewage within the allotment, contact the BLM WRFO Hazardous Materials Coordinator at (970) 878-3800 and/or

Determination[1]	Resource	Rationale for Determination
		the Colorado Department of Public Health and Environment (CDPHE) at 1(877)518-5608.
NI	Fire Management	Under the proposed action, grazing and the presence of livestock will not affect fire suppression efforts. Future land management practices, such as prescribed fire or mechanical vegetation treatments, may be used to enhance both quality and quantity of herbaceous forage production. Decreasing stocking rates, or complete removal of livestock, in the short-term may be necessary either before, during, or after certain vegetation treatments. This practice may provide the competitive edge to native vegetation such that cheatgrass or other non-native annuals do not dominate post-burn vegetation composition.
NI	Social and Economic Conditions	There would not be any substantial changes to local social or economic conditions.
NP	Environmental Justice	According to the most recent Census Bureau statistics (2010), there are no minority or low income populations within the WRFO.
Resource Uses		
NI	Forest Management	Areas of pinyon/juniper woodlands within the various grazing allotments are used by livestock for shelter. Some damage may occur to trees from livestock using the area, but damage is not expected to impact woodlands to a degree that the existing stands would be permanently harmed.
PI	Livestock Grazing	See discussion below.
NI	Realty Authorizations	There are pipelines, power lines, and miscellaneous rights-of-way in these allotments but proposed livestock grazing use and proposed maintenance actions should have no impact. The surface disturbance associated with maintenance of the North CC trail should have no impact on any rights-of-way as there are none along that route.
NI	Recreation	The modification of the grazing schedules within range of alternatives are not likely to result in any noticeable impacts to existing recreational settings or opportunities
NI	Access and Transportation	The modification of the grazing schedules is not anticipated to impact access and transportation in the area.
NP	Prime and Unique Farmlands	There are no Prime and Unique Farmlands within the project area.
Special Designations		
NI	Areas of Critical Environmental Concern	Small portions of the White River Riparian ACEC are located within the North Dry Fork allotment. The White River Riparian ACEC is designated for important biologically diverse plant communities, bald eagle roosts, and federally-listed Colorado pikeminnow below Taylor Draw Dam. The level of use in the ACEC is expected to be nominal and will have minimal impacts to the resources for which the ACEC was designated. The western end of the North Dry Fork allotment is located within the boundary of the Physaria potential ACEC. This potential ACEC meets the relevance and importance criteria due to cultural resources

Determination[1]	Resource	Rationale for Determination
		and special status plant species (BLM threatened). These resources are addressed in Sections 5.12 and 5.13 of this document.
NP	Wilderness	There are no wilderness areas within the project area.
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers in the WRFO.
NP	Scenic Byways	There are no Scenic Byways within the project area.

[1] NP = Not present in the area impacted by the Proposed Action or Alternatives. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with potential for impact analyzed in detail in the EA.
* Public Land Health Standard

5. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

5.1. General Setting

The North Dry Fork, Main Dry Fork, Segar Gulch, Powerline, and Little Hills allotments are in the general area south of Highway 64 and west of Highway 13 approximately 10-15 miles southwest of Meeker. Elevations in these allotments range from 6,000 to 8,000 feet. Average annual precipitation in these allotments ranges from 16-20 inches at the higher elevations on the east down to 10-12 inches in the lower western end of North Dry Fork. Vegetation in these allotments is a mix of pinyon/juniper, mountain shrub, sagebrush, grassland, and some lower elevation greasewood plant communities.

5.2. Monitoring and Evaluation

Long-Term Trend Sites

Each trend site includes a permanent, repeatable photo plot and a permanent, repeatable Daubenmire transect line to measure ground cover and frequency. Existing trend sites were established in key areas to monitor livestock grazing use and vegetative conditions and were established under protocol developed in the Grazing Allotment Monitoring Plan for the White River Resource Area. There are no long term trend monitoring sites in the Powerline allotment. There is a long-term trend monitoring site on a ridge-top between the Dark Canyon pasture and the Main Dry Fork allotment and several other long term trend plots in the North and Main Dry Fork allotments. Most of these plots were established in the early 1980s and have been re-visited one to three times since then (most recently in 2012 and 2014).

Assessment, Inventory and Monitoring (AIM)

The AIM methodologies, including line point intercept, canopy gap intercept, and belt transects for perennial plant density have been used to gather data to provide information on the vegetative cover, bare ground, and plant community composition across the field office including ten plots within these allotments. AIM data provides quantitative overviews of vegetation conditions in the various plant communities throughout the Field Office and has been discussed in general

terms with the other long term trend data for these allotments. There are a total of three AIM plots in the North Dry Fork, Main Dry Fork allotments and the Dark Canyon pasture.

Evaluation of Pinyon-Juniper Sites

A summary of vegetative trend in the North Dry Fork and Main Dry Fork allotments' pinyon juniper (PJ) sites indicates that there has been an increase in cheatgrass (a non-native invasive annual grass). However, data is lacking to determine if its presence is above or below average for similar sites throughout the WRFO. Western wheatgrass (a rhizomatous native perennial grass), while present in the plant community, appears to contribute less foliar cover than the average for PJ sites. Trend data show that needle and thread grass (a native perennial bunch grass) has increased in the plant community composition in the North Dry Fork allotment (likely in association with burned areas) and has decreased in the Main Dry Fork allotment. Data is lacking to know if it contributes more or less than the average foliar cover for PJ sites. June grass (another native perennial bunch grass) has decreased in plant community composition but still contributes more foliar cover than average for PJ sites. Indian ricegrass (a native perennial bunchgrass) was no longer present at the last reading where it is an expected component of the plant community composition for a PJ site. The apparent loss or notable reduction of Indian ricegrass is unfavorable, as is the increase in cheatgrass. Other shifts in the native bunch grass community are less clear.

Evaluation of Mountain Loam Sites

Mountain Loam sites have shown an increase in cheatgrass, though it currently appears to be a fairly low level component of the plant community compared to similar sites throughout the WRFO. Western wheatgrass is variable across monitored sites, increasing and above average at some and decreasing and below average at other loamy sites. On average there has been a decrease in presence of both Needle and thread grass and June grass in the plant community composition and their current contribution to the plant community is below average for this site type. The decline in native perennial grasses and the presence of cheatgrass in the plant community is unfavorable.

Evaluation of Foothill Swale Sites

Monitoring data from Foothill Swale sites in the Main Dry Fork allotment show a similar decline in presence and of native perennial forage species including Western wheatgrass and needle and thread grass. Foliar cover of both of these species is currently less than average for Foothill Swale sites. Junegrass has increased and appears to contribute higher than average foliar cover for this site type.

Overall Evaluation of Public Land Health Standards

Across these allotments, disturbance (e.g., fire, drought stress) has contributed to changes in the plant community composition in many areas. Distance to water and topography influence the intensity of livestock use in many sites, though in key forage areas livestock grazing has more potential to influence plant community composition. Specific causal factors for the noted shifts in plant community composition are unclear in these allotments.

In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status species, and water quality. The results of the most recent land health assessments (2012) are presented in Tables 22-27Table 23. A discussion of how the proposed action and alternatives would affect the public land health standards is provided in the impacts analysis.

Table 23. Public Land Health Standards for the Powerline Allotment

Standard	Achieving or Moving Towards Achieving (Acres)	Not Achieving (Acres)	Causative Factors
1: Upland Soils	543	0	n/a
2: Riparian Systems	n/a	n/a	n/a
3: Plant and Communities	543	0	n/a
4: Special Status Species	543	0	n/a
5: Water Quality	n/a	n/a	n/a

Table 24. Public Land Health Standards for the North Dry Fork Allotment

Standard	Achieving or Moving Towards Achieving (Acres)	Not Achieving (Acres)	Causative Factors
1: Upland Soils	11,566	351	Historic and recent grazing practices, weedy non-native annual plant domination, noxious weeds
2: Riparian Systems	4.4 (miles)	0 (miles)	
3: Plant and Communities	11,566	351	Historic and recent grazing, annual plant domination, noxious weeds
4: Special Status Species	11,566	351	Deleterious grazing-related shifts in shrubland ground cover for BLM-sensitive migratory birds
5: Water Quality	Unknown	Unknown	The BLM lacks current water quality monitoring data for this allotment, especially for ephemeral and intermittent systems. Refer to discussion and analysis in Section 5.8 regarding Surface and Ground water quality.

Table 25. Public Land Health Standards for the Main Dry Fork Allotment

Standard	Achieving or Moving Towards Achieving (Acres)	Not Achieving (Acres)	Causative Factors
1: Upland Soils	9,866	261	Historic and recent grazing, weedy non-native annual plant domination, noxious weeds
2: Riparian Systems	2.1 (miles)	1.2 (miles)	Historic and recent grazing practices, trailing, trampling, bank shearing, inadequate riparian vegetation, noxious weeds
3: Plant and Communities	9,866	261	Historic and recent grazing, annual plant domination, noxious weeds
4: Special	9,866	261	Deleterious grazing-related shifts in shrubland ground cover for

Standard	Achieving or Moving Towards Achieving (Acres)	Not Achieving (Acres)	Causative Factors
Status Species			BLM-sensitive migratory birds
5: Water Quality	n/a	n/a	The BLM lacks current water quality monitoring data for this allotment, especially for ephemeral and intermittent systems. Refer to discussion and analysis in Section 5.8 regarding Surface and Ground water quality.

Table 26. Public Land Health Standards for the Segar Gulch Allotment

Pasture	Standard	Achieving or Moving Towards Achieving (Acres)	Not Achieving (Acres)	Causative Factors
Hay Gulch	1: Upland Soils	7,844	87	Historic and recent grazing, weedy non-native annual plant domination, noxious weeds
	2: Riparian Systems	1.9 (miles)	0	n/a
	3: Plant and Communities	7,844	87	Historic and recent grazing, annual plant domination, noxious weeds
	4: Special Status Species	7,844	87	Deleterious grazing-related shifts in shrubland ground cover for BLM-sensitive migratory birds
	5: Water Quality	n/a	n/a	The BLM lacks current water quality monitoring data for this allotment, especially for ephemeral and intermittent systems. Refer to discussion and analysis in Section 5.8 regarding Surface and Ground water quality.
Joe Bush	1: Upland Soils	3,561	20	Historic and recent grazing, limited upland water concentrates grazing impacts in valley bottom – soil disturbance, weedy non-native annual plant domination, noxious weeds
	2: Riparian Systems	0	3.9 (miles)	Historic and recent grazing practices, recent trailing, trampling, bank shearing, inadequate riparian vegetation, noxious weeds
	3: Plant and Communities	3,561	20	Historic and recent grazing, annual plant domination, noxious weeds
	4: Special Status Species	3,561	20	Deleterious grazing-related shifts in shrubland ground cover for BLM-sensitive migratory birds
	5: Water Quality	n/a	n/a	The BLM lacks current water quality monitoring data for this allotment, especially for ephemeral and intermittent systems. Refer to discussion and analysis in Section 5.8 regarding Surface and Ground water quality.
Timber Gulch	1: Upland Soils	501	5	Historic and recent grazing, weedy non-native annual plant domination, noxious weeds
	2: Riparian Systems	2.6 (miles)	0	n/a
	3: Plant and Communities	501	5	Historic and recent grazing, annual plant domination, noxious weeds
	4: Special Status Species	501	5	Deleterious grazing-related shifts in shrubland ground cover for BLM-sensitive migratory birds

Pasture	Standard	Achieving or Moving Towards Achieving (Acres)	Not Achieving (Acres)	Causative Factors
	5: Water Quality	n/a	n/a	The BLM lacks current water quality monitoring data for this allotment, especially for ephemeral and intermittent systems. Refer to discussion and analysis in Section 5.8 regarding Surface and Ground water quality.
Bear Ridge	1: Upland Soils	1,499	17	Historic and recent grazing, weedy non-native annual plant domination
	2: Riparian Systems	0	1.8 (miles)	Upstream impoundments, trailing, trampling, bank shearing, inadequate riparian vegetation, heavy noxious weeds
	3: Plant and Communities	1,499	17	Historic and recent grazing, annual plant domination, noxious weeds
	4: Special Status Species	1,499	17	Deleterious grazing-related shifts in shrubland ground cover for BLM-sensitive migratory birds
	5: Water Quality	n/a	n/a	The BLM lacks current water quality monitoring data for this allotment, especially for ephemeral and intermittent systems. Refer to discussion and analysis in Section 5.8 regarding Surface and Ground water quality.

Table 27. Public Land Health Standards for the Little Hills Allotment

Pasture	Standard	Achieving or Moving Towards Achieving (Acres)	Not Achieving (Acres)	Causative Factors
Dark Canyon	1: Upland Soils	2,760	40	Historic and recent grazing, weedy non-native annual plant domination, noxious weeds
	2: Riparian Systems	0.3 (miles)	0	n/a
	3: Plant and Communities	2,760	40	Historic and recent grazing, annual plant domination, noxious weeds
	4: Special Status Species	2,760	40	Deleterious grazing-related shifts in shrubland ground cover for BLM-sensitive migratory birds
	5: Water Quality	n/a	n/a	The BLM lacks current water quality monitoring data for this allotment, especially for ephemeral and intermittent systems. Refer to discussion and analysis in Section 5.8 regarding Surface and Ground water quality.

5.3. Assumptions for Analysis

For purposes of the analysis in this EA, the BLM assumed that the permittee would use their full scheduled grazing preference each year of the 10-year permit and the 50 percent utilization standard would not be exceeded. However, the livestock grazing section also acknowledges that the permittee may actually use less AUMs in a given year than the full scheduled number for a variety of reasons and, for this reason, the actual utilization levels may be less than 50 percent.

It is assumed that most livestock forage use would be concentrated around water sources and that most trails would be located along fence lines or radiating out from water sources. Total acres of concentrated livestock use are estimated to be 7,672 acres (or 15 percent of the affected allotments) (Table 28, Map 5).

The feeding of nutritional supplements may occur. Supplements (e.g., mineral blocks or granular minerals in tubs) are intended to supply necessary nutritional needs of livestock that are not provided by the available natural forage. Supplements are not intended to provide baseline nutritional needs nor to allow for a greater number of animals than what can be supported by the allocated portion of the natural forage.

Table 28. Estimate of Areas of Concentrated Livestock Use

Allotment	Major Water Developments (acres)[1]	Minor Water Developments (acres)	Fences (acres)	Total (acres)
North Dry Fork	1,150	525	26	1,701
Main Dry Fork	1,250	475	30	1,755
Segar Gulch	3,250	901	62	4,213
Powerline	None	None	1	1
Dark Canyon N ½	None	None	2	2

[1] It was assumed, based on professional experience, that the average disturbed area around a given point water source (well, spring, trough, waterhole, small reservoir) occurs within about 0.25 miles around the water source and this equals about 125 acres per water source.
[2] It is assumed the disturbed area around small or minor water sources (small waterholes or low producing springs) that the average disturbed area would be within 0.1 mile around the water source and equals about 25 acres.
[3] Cattle trails tend to be located along fence lines and typically are less than 5 feet wide. The miles of fence located within an allotment where cattle are known to trail were estimated and the area of potential disturbance associated with past fence construction and livestock trailing was estimated using the formula # mi. x 5 ft. x 5,280 ft. per mi./ 43,560 ft.^{2} per acre.

5.4. Livestock Grazing

5.4.1. Analysis Issues

- How much forage is available for livestock grazing in the pasture/allotment?
- Does the grazing schedule incorporate a minimum rest requirement (period of no livestock grazing) to restore plant vigor, improve watershed conditions, and improve rangeland conditions as required in the 1997 White River RMP?
- Would utilization levels identified in the 1997 White River RMP for key grass and browse species (page 2-13) be exceeded with the grazing schedule?
- Does range monitoring data reflect livestock grazing (actual use) at the full preference level? If not, have precipitation trends (amounts or timing) or other range conditions

resulted in the permittee being able to use less than the full preference (permitted active AUMs)?

5.4.2. Affected Environment

The 1997 White River ROD/RMP outlines minimum rest requirements for most allotments. Rest periods are the time associated with the critical growth period required for plants to restore vigor, improve watershed conditions, and improve rangeland conditions. Required rest periods are not defined for the Powerline allotment. Rest requirements state that The North Dry Fork would be rested June 20 two in three years; Main Dry Fork would be rested until July 1 yearly; Segar Gulch would be rested until July 15 one in four years; and the Dark Canyon pasture would be rested until June 20 yearly and until July 5 one in two years.

Topography and distance to water affects the utility of an area for livestock grazing. As slope increases above 30-35 percent, the utility of those areas for livestock grazing decreases by more than half. Slopes greater than 30-35 percent are generally considered marginally accessible to livestock. Slopes greater than 60 percent receive minimal if any grazing use by cattle (Holechek, 1998). As shown in Table 29, more than 40 percent of the land within each allotment is associated with slopes greater than 35 percent.

Table 29. Topography within the Allotments

Allotment	Pasture	Slope Less Than 35%			Slope Greater Than 35%			Total Acres
		BLM	Private	CPW	BLM	Private	CPW	
Powerline		222	235	0	320	79	0	856
North Dry Fork		7,039	549	4,060	4,879	109	4,302	20,938
Main Dry Fork		5,852	704	2	4,275	562	2	11,397
Little Hills	Dark Canyon N ½	1,638	0	0	1,165	0	0	2,804
Segar Gulch	Hay Gulch	3,793	21	21	4,138	17	13	8,003
	Joe Bush	1,603	8	0	1,968	10	0	3,589
	Timber Gulch	161	6	0	345	5	0	517
	Bear Ridge	938	1	0	578	1	0	1,518

When calculating average carrying capacity for each allotment, slope was factored in and AUMs per acre were reduced by 50 percent to account for the reduced utility of steeper areas. This adjustment more accurately reflects carrying capacity based on utility and reduces risk of overstocking in the more accessible key forage areas.

Forage allocations for livestock purposes are intended to result in an average of 50 percent utilization, which allows half of the annual forage production to remain for other resource needs such as wildlife and soil/site stability. Stocking rates reflected in Table 30 are based on moderate

stocking levels that are generally lower than the stocking rates recommended by the Natural Resources Conservation Service (NRCS) for most of the specific ecological sites. Estimated stocking rates take into consideration factors such as distance to water, topography, current rangeland condition and annual fluctuations in forage production based on climatic conditions. Moderate stocking rates allow for more operational flexibility and improve potential for meeting the Colorado Public Land Health Standards and other resource needs into the future.
Future monitoring and analysis of plant community composition, forage production, and forage availability (based on distance to water) may result in changes to the estimates of available forage.

Table 30. Available Forage for Livestock (AUMs)

Allotment	Pasture	Slope Less Than 35%			Slope Greater Than 35%			Total AUMs	Percent Public Land[1]
		BLM AUMs	Private AUMs	State AUMs	BLM AUMs	Private AUMs	State AUMs		
Powerline		21	37	0	15	9	0	82	44
North Dry Fork		528	83	332	188	4	202	1,337	54
Main Dry Fork		870	163	0	253	59	0	1,345	83
Little Hills	Dark Canyon (entire pasture)	433	0	0	91	0	0	524	100
Segar Gulch	Hay Gulch	338	0	0	191	0	0	529	100
	Joe Bush	214	0	0	124	1	0	339	100
	Timber Gulch	17	0	0	14	0	0	31	100
	Bear Ridge	134	0	0	42	0	0	176	100

[1] The percent public land is the percentage of forage (AUMs) produced on BLM lands in relation to total AUMs.

Grazing permits authorize each operator to graze up to a maximum number of AUMs by allotment or pasture each grazing year within allowable utilization levels as listed in the 1997 White River RMP. The actual number of AUMs grazed each year varies based on environmental conditions and/or operational needs. Table 31 shows the average actual grazing use made by each operator from 2002 through 2016, which includes several years (2002, 2004, 2006, 2007, 2012, 2014) where growing season precipitation (especially during April, May, and June) was below average. Livestock operators generally adjust grazing use periods and/or reduce their livestock numbers to address reduced forage production or limited water availability in these unfavorable years.

Table 31. Average Actual Use by Allotment in AUMs from 2002 to 2016

Allotment	Mr. Lopez Actual Use (AUMs)	Shults Ranch Actual Use (AUMs)	Combined Actual Use (AUMs)	Average Percent of Permitted AUMs
Powerline	n/a	35	n/a	49
North Dry Fork	298	138	436	54
Main Dry Fork	351	496	847	62
Segar Gulch	n/a	729	n/a	59
Little Hills (Dark Canyon Pasture)	n/a	59	n/a	15

5.4.3. Summary Comparison of Grazing Alternatives

Table 32. Summary Comparison of the Grazing Alternatives

Allotment	Pasture	Alternative A (Current Management)	Alternative B (Permittee Proposal) (Comparison to Alt A)	Alternative C No Grazing
Powerline		Growing season use. Provides some early and late growth and regrowth opportunity. Schedules grazing use above capacity.	Season of use remains the same but a 7% reduction in number of livestock.	There would be complete deferment from livestock grazing. The only grazing use would be wildlife.
North Dry Fork		Growing season use. Rotation from one use area another as a large herd. Limited water availability prevents adhering to this schedule. West end of allotment would be grazed through early growing season every year. East half would benefit from deferment from grazing until later in the growth period.	Season of use would remain the same but a rotation through use areas allows deferment, growth/regrowth opportunity, and limits grazing duration to maximum of 20 days (Mr. Lopez) or 40 days (Shults Ranch). On years when conditions allow grazing use to extend the additional two weeks, duration in each use area would increase by roughly 3-5 days. There would be an 18 percent increase in the number of livestock.	There would be complete deferment from livestock grazing. The only grazing use would be wildlife.
Main Dry Fork		Provides deferment (growth opportunity) through most of the growing season. Long duration grazing period.	Season of use remains the same but with a 5% reduction in use. When conditions allow delayed rotation from North Dry Fork allotment this use period could be deferred two more weeks slightly reducing overall duration and intensity.	There would be complete deferment from livestock grazing. The only grazing use would be wildlife.
Little Hills	Dark Canyon	Use in this pasture would alternate each year. In one	Dormant season use only and a 60% decrease in use.	There would be complete deferment from livestock

		year there would be deferment until late growing season and then dormant season use with a very long duration. In the next year, there would be dormant season use only with a long duration.		grazing. The only grazing use would be wildlife.
Segar Gulch	Hay Gulch	Use in the northern portion of the pasture would result in grazing through most of the critical growth period each year with a long period of use. Use in the southern portion of the pasture results in deferment until the dormant season (complete growth opportunity) each year; the riparian areas (Hay Gulch Reaches 1 and 2) would only receive dormant season use.	Use in this pasture would alternate each year between the north and south halves. In one year, the northern half would have a deferment through the critical growth period and a longer duration of grazing. The southern half would have a deferment until late in the growing season and have a short duration grazing period. In the next year, the use in each pasture would flip.	There would be complete deferment from livestock grazing. The only grazing use would be wildlife.
	Joe Bush	In this pasture, use would alternate each year. In one year, there would be a deferment until after growing season (complete growth opportunity) with a moderately long use period. In the next year, there would be there would be a deferment until later in growing season (use through hottest period concentrates use near shaded areas) followed by a fall use period (overall a long use period). During the fall/dormant season use, there	This pasture would have alternate use with the Bear Ridge pasture. One year there would be a deferment until after the growing season (complete growth opportunity) with a longer use period. The next year there would be a deferment until the late growing season (with some growth opportunity) and a moderate duration use period. There are few upland water sources so use in this pasture depends on water in the Joe Bush channel.	There would be complete deferment from livestock grazing. The only grazing use would be wildlife.

		is better distribution onto slopes (full growth opportunity with a moderate use period). However, this moderate duration follows an earlier use period resulting in 75 days total use. Use in this pasture depends on water in the Joe Bush channel.		
	Timber Gulch	Use in this pasture would alternate each year. In one year, there would be a deferment until late growing season. In the next year, there would be a deferment until dormant season. In any year, the use period would be very short.	Essentially the same as Alternative A with the use period being one day shorter.	There would be complete deferment from livestock grazing. The only grazing use would be wildlife.
	Bear Ridge	Use in this pasture would alternate each year. In one year, there would be deferment until mid-growing season (some growth opportunity). In the next year, there would be deferment until later in the growing season. In any year, there would be a long use period and the pasture is over allocated by about 23 percent.	See comments for Joe Bush pasture except that there are more reliable water sources available in this pasture (in Timber Gulch and upland sources)	There would be complete deferment from livestock grazing. The only grazing use would be wildlife.

5.4.4. Direct & Indirect Effects – Current Management (Alt A)

Powerline Allotment

In the Powerline allotment, continuation of current management would have similar impacts to those discussed for Alternative B. It would authorize livestock grazing approximately 20 percent above the current estimated carrying capacity for this allotment. This higher level of livestock use could, especially on unfavorable years, result in stress to forage plants and could contribute to a decline in rangeland health in areas that receive more grazing use. On average or better years, continuation of grazing at this level would likely allow rangelands to maintain healthy desirable plant communities.

North Dry Fork Allotment

In the North Dry Fork allotment, continuation of current management would in theory result in all livestock rotating through the allotment as one larger herd. According to the livestock operators, this alternative has not been feasible through the last ten year permit period due to recent environmental conditions, primarily limited water volume, where water sources exist. This alternative would allow forage plants in the east use area more opportunity for growth prior to grazing as cattle would not generally enter this area until mid to late June. The west use area would be grazed yearly through the critical growth period when plants are at their lowest nutrient reserves. These plants would have the remainder of the growing season to recover and regrow if moisture conditions were favorable. When conditions are not favorable, forage plants would have little opportunity for recovery. Both operators still believe that even with the additional water sources spread throughout the western end of this allotment, few of the water sources are adequate to water the higher number of cattle associated with this alternative.

Main Dry Fork Allotment

Grazing in the Main Dry Fork Allotment would be the same timeframe as under Alternative B. Average actual use between 2002 and 2016 was 62 percent of authorized AUMs. Previously, two partially fenced private parcels (Hunt Place and Reed Place) had been calculated as separate use areas excluded from the allotment. But since they are not exclusive use areas, those AUMs have been added in above for a more accurate reflection of grazing use authorized in the allotment. Installation of the Post Gulch drift fence allows improved livestock control by preventing Mr. Lopez' livestock from accessing the Dry Fork of Piceance Creek. This fence also limits livestock grazing along the Dry Fork of Piceance Creek to the brief periods when cattle enter the allotment in July and leave in November. Continued grazing under this alternative generally appears to be compatible with meeting land health standards in this allotment.

Little Hills Allotment (Dark Canyon Pasture)

Under either grazing alternative this pasture would benefit from deferment from grazing until late in the growing season. With the continuation of current management, livestock would graze for a longer timeframe (up to 173 days) one year and would graze similar to Alternative B (62 days from early to mid-winter) one year. While forage plants would benefit from the late grazing use, trailing and trampling impacts would be higher due to the extended use period. Average actual use between 2002 and 2016 has been 15 percent of authorized AUMs.

Segar Gulch Allotment
Under continuation of current management, the south half of the Hay Gulch pasture would benefit from complete rest through the growing season every year. Dormant season use every other year is compatible with maintaining rangeland health. However, according to Shults Ranch, they have rarely made use of this late use period. Yearly grazing through the majority of the growing season in the north half of this pasture is not compatible with maintaining rangeland health over the long term. This alternative does provide growing season deferment or complete growing season rest for the Joe Bush, Bear Ridge, and Timber Gulch pastures with grazing being scheduled later in or after the growth period. As scheduled, the Bear Ridge pasture is permitted above its capacity which is not compatible with maintaining rangeland health. Under this alternative the soil and vegetation conditions in the channel of Joe Bush Gulch appear to be static where noxious weeds are common and bare ground and unstable banks are common. Grazing management is a challenge in this pasture where limited water sources (especially along the ridges) strongly influences when and how these two pastures can be grazed. This grazing schedule appears to be compatible with acceptable conditions in Timber Gulch.

5.4.5. Direct & Indirect Effects – Permittee's Proposals (Alt B)

In every allotment vegetation will be directly affected by grazing use and trampling as described in the Vegetation section. Indirectly, grazing of key forage species causes a selective pressure resulting in the potential for shifts in plant community composition over the long term. Proposed grazing schedules are expected to manage livestock grazing in a manner that maintains rangeland health in the long-term. Those areas that are not meeting standards due to historic grazing or presence of noxious weeds will likely not improve under any grazing schedule or even in the absence of livestock grazing without some form of intensive management in-put. If negative impacts are documented, future analysis should identify and incorporate adaptive management strategies to resolve problem areas.

Powerline Allotment
In the Powerline allotment proposed grazing would be at the same timeframe as previously permitted, though at a lower intensity (7 percent fewer AUMs), and is expected to meet both operational and rangeland needs. Early growing season growth opportunity and later growing season regrowth opportunity should allow rangelands to maintain the healthy desirable plant communities present in most areas.

North Dry Fork Allotment
In the North Dry Fork allotment, proposed grazing has defined use areas with specified use periods and utilization objectives. Pinyon-juniper woodlands that burned in 2004 provide a temporary increase in forage production in those areas. Additional water sources that have been developed (especially in the western half of this allotment) since the last permit renewal will allow for improved livestock distribution. Under the Limits of Flexibility, on optimal forage production years if livestock stay an additional 15 days, an additional 107 AUMs would be used. This scenario would still keep use within the calculated capacity of this allotment. Livestock

management that adheres to the proposed specifications and objectives would allow for maintenance of healthy rangeland plant communities in this allotment.

Main Dry Fork Allotment

Proposed grazing in the Main Dry Fork allotment would also be similar to what was previously authorized and the use periods are the same. Grazing would continue to be authorized from later in the growth period into the dormant season. The proposed grazing schedule would result in a combined yearly total (BLM and private) of 1,124 AUMs. This would be 57 fewer total AUMs than the current even year schedule and 279 fewer total AUMs than the current odd year schedule. Proposed use documents how Mr. Lopez currently removes cattle as they drift down and congregate near the northeast end of Post Gulch. Mr. Lopez moves them to his adjacent Segar Mountain allotment. Installation of the ¼ mile Post Gulch Drift fence since the last permit renewal has effectively prevented Mr. Lopez' livestock from accessing the Dry Fork of Piceance Creek through the grazing period. The area along the Dry Fork of Piceance Creek would only be grazed briefly as cattle are driven in to the allotment in July and out in November.

Little Hills Allotment (Dark Canyon Pasture)

Proposed grazing use would limit grazing duration to 62 days yearly during the dormant season. Forage plants would be deferred from grazing use every year for the full growing season. Proposed use would reduce the duration of trailing and trampling impacts that occur in the valley bottoms where more livestock use occurs.

Segar Gulch Allotment

Proposed grazing use in the pastures of the Segar Gulch allotment would be similar to the five-pasture deferred rotation previously analyzed and permitted. The Left Hand Hay Gulch well would provide a reliable water source allowing better adherence to the proposed rotation between the north and south halves of the Hay Gulch pasture. Maintenance of the North CC Trail would improve access and facilitate maintenance of the Hay Gulch Well RIP#204393, an important water source in the South Hay Gulch use area. Where grazing use periods would alternate between the north and south halves of the pasture the shorter use period and deferment until later in the growth period should not create negative impacts to rangelands. Proposed grazing schedules for the Joe Bush and Bear Gulch pastures would defer these pastures from grazing until late in, or after the growth period. Proposed use in the Timber Gulch pasture is essentially the same as the current management occurring briefly either late in or after the growth period.

The proposed rotational grazing schedules between the Joe Bush and Bear Ridge pastures would vary somewhat from the current permit and would continue to fully meet the minimum rest requirement. The proposed grazing schedules would result in a slightly longer use period through the later growing season one year, followed by a shorter use period deferred until the end of the growth period the next year. This schedule would provide each pasture with growing season deferment every other year. The late fall use period every other year would be eliminated. Proposed grazing intensity (AUMs) would be scheduled more evenly between the pastures according to each pasture's capacity. Proposed use in the Bear Ridge pasture would alternate

between 81 and 95 percent of capacity and the Joe Bush pasture would be scheduled at 55 and 63 percent of its capacity. Conservative stocking rates should help reduce impacts where steep topography in these pastures results in more livestock use in the less steep valley bottoms and ridges. This grazing regime should allow forage plants to meet physiological needs to maintain healthy rangelands. It is not clear if this schedule will allow for improvement in soil stability of the channels of Joe Bush Gulch and the lower section of Timber Gulch in the Bear Ridge pasture.

The brief late summer or fall use period in the Timber Gulch (riparian) pasture is consistent with past management and is expected to be compatible with maintaining rangeland health.

5.4.6. Direct & Indirect Effects – No Livestock Grazing (Alt C)

The No Livestock Grazing Alternative would provide the greatest benefit to rangelands due to the absence of livestock grazing related impacts. This alternative provides the greatest opportunity for native forage plants to grow, achieve high plant vigor, produce seed, stabilize and protect soils, and compete with weedy species. However, this alternative is not consistent with the 1997 White River RMP that identifies all of these allotments and pastures as areas available for livestock grazing, and describes grazing as an acceptable use on public lands.

5.5. Vegetation

5.5.1. Analysis Issues

- Would livestock grazing limit the ability of native vegetation to persist and reproduce in the pasture/allotment?
- Would livestock grazing introduce or promote the establishment of weeds?

5.5.2. Affected Environment

The project area encompasses a wide range of elevation and vegetative community types. Elevation within the allotments/pastures ranges from 6,000 – 8,000 feet and are largely comprised of steep, mountain shrub, pinyon-juniper and Douglas fir dominated slopes interspersed with narrow Wyoming or basin big sagebrush valleys. Pinyon-Juniper (PJ) woodlands (>25,000 acres) Mountain Browse (~14,500 acres), Stoney Foothills (~3,200 acres), Foothill Swale (~2,200) and Rolling Loam (~1,500 acres) are predominant ecological sites throughout these allotments.

The primary forage species present in these allotments are wheatgrasses (*Agropyron* species), Needlegrasses (*Stipa* species), and Indian ricegrass (*Achnatherum hymenoides*). Other perennial grasses frequently present include Junegrass (*Koeleria macrantha*), Sandberg bluegrass (*Poa secunda*), Bluebunch wheatgrass (*Pseudoroegneria spicata*), Squirrel tail (*Sitanion hystrix*), muttongrass (*Poa fendleriana*), and Basin wildrye (*Elymus cinereus*). Common non-native perennial grasses include smooth brome (*Bromus inermis*), and Kentucky bluegrass (*Poa pratensis*).

Weed species of concern in these allotments and pastures continue to be leafy spurge (*Euphorbia esula*), houndstongue (*Cynoglossum officinale*), and musk thistle (*Carduus nutans*). Along Piceance Creek in the western end of the North Dry Fork allotment, tamarisk (*Tamarix* spp.) is well established. Additionally there are known infestations of musk thistle, spotted knapweed (*Centaurea maculosa*), and diffuse knapweed (*Centaurea diffusa*) in the North Dry Fork and Segar Gulch allotments. Leafy spurge remains the largest threat to rangeland health in the overall permit renewal area. Houndstongue occurs in many plant communities throughout these allotments, but infestations are primarily focused in drainages such as Hay Gulch, Dry Fork of Piceance, and Timber Gulch. Infestations of musk thistle, and spotted and diffuse knapweed occur in several more finite locations in these allotments.

The BLM uses seral ratings to compare the degree to which the observed composition of species matches the expected species composition in the potential natural plan community. Key ecological sites were assessed during the 2012 field season for the Colorado Public Land Health Standards for each allotment (Table 33). The majority of acreage in all of these allotments have been rated as late-seral or being at the potential natural community (PNC), or even healthy mid-seral. Vegetation production and species composition on these sites provide adequate cover for soil protection and forage production to meet forage demands. Some of the mid-seral sites such as Alkaline Slope, Foothill Swale, and Rolling Loam Stoney Foothills, and Loamy Slopes have altered plant communities that have been influenced by livestock grazing but are not presently at risk of degradation below the threshold for healthy plant community. With the exception of burned areas with healthy early seral plant communities, of the areas that have been rated as early-seral, some have crossed a threshold and are dominated by weedy annual species such as cheatgrass with a presence of noxious weeds. These early seral communities do not meet the Colorado Public Land Health Standards for species diversity, soil protection or forage production. However, the condition of these sites generally would not significantly change with or without livestock grazing. Improvements in plant community health at these sites will require some form of targeted intensive vegetation treatment.

Table 33. Ecological Site Similarity Ratings

Allotment	Pasture	PNC[1] (acres)	Late Seral[2] (acres)	Mid Seral[3] (acres)	Early Seral[4] (acres)	BLM Acres Classified[5]
Powerline		10	15	98	12	135
North Dry Fork		173	385	2,009	351	2,918
Main Dry Fork		336	630	5,449	261	6,676
Little Hills	Dark Canyon	0	234	2,315	40	2,589
Segar Gulch	Hay Gulch	994	1,488	922	87	3,491
	Joe Bush	0	152	2,660	20	2,812
	Timber Gulch	12	17	321	0	350
	Bear Ridge	0	0	1,483	17	1,500
Totals		1,525	2,921	15,257	788	20,471

[1]PNC is the potential natural community.
[2]Late seral sites have 51-75% of the expected composition of species in the PNC.
[3]Mid seral sites have 26-50% of the expected composition of species in the PNC.
[4]Early seral sites have 0-25% of the expected composition of species in the PNC.

[5]Some sites such as pinyon juniper woodlands, spruce-fir woodlands, and gullied areas provide limited, minimal, or no utility for livestock grazing and were not included in the ratings.

Powerline Allotment

In the Powerline allotment, 100 percent of the allotment has been rated as meeting Standard 3. The sites rated as early seral are reclaimed pipeline corridors with seeded vegetation established. There are scatted patches of cheatgrass in some of the disturbed sites. The pipeline corridor areas are also easily accessed by livestock for forage and nearby cover (shade) and experience more grazing use. Plant communities here are at higher risk for spread and establishment of weedy annual species like cheatgrass or other noxious weeds such as houndstongue.

North Dry Fork Allotment

Approximately 88 percent of the allotment has ranges sites with healthy plant communities that meet Standard 3. The 351 acres rated as early seral are areas dominated by either a mix of annual grasses or other weedy annual species or areas with infestations of noxious weeds such as leafy spurge or houndstongue. Since 2004 approximately 3,000 acres of mostly pinyon/juniper woodland has burned in the North Dry Fork allotment. The burn area was aerially seeded and generally, establishment of seeded species and recovery of native species has been successful. This has resulted in healthy early-seral grass dominated sites (meeting Standard 3) that also have a temporary increase in forage production.

Main Dry Fork Allotment

In the Main Dry Fork allotment, 96 percent of plant communities are meeting Standard 3. The 261 acres rated as early-seral are areas dominated by some mix of annual grasses, annual weedy species, or noxious weeds. Houndstongue and musk thistle are common in these areas and there are several patches of leafy spurge as well. Cheatgrass and other weedy species are also common throughout these sites.

Little Hills Allotment (Dark Canyon Pasture)

In the Dark Canyon pasture, 98 percent of the ecological sites have plant communities within acceptable thresholds. The mid-seral range sites are primarily big sagebrush communities which occur near watering areas and have been influenced by greater intensities of livestock use. Early-seral areas are again, dominated by weedy annuals such as cheatgrass and there are several patches of leafy spurge in this area.

Segar Gulch Allotment

In the Hay Gulch pasture, 97.5 percent of the acreage in the Hay Gulch pasture is meeting Standard 3 for upland plant communities. Early-seral sites in the bottom of Hay Gulch have infestations of leafy spurge and a mixed presence of other weedy annual species including cheatgrass. Currently, the Joe Bush pasture is meeting Standard 3 having desirable upland plant communities with an acceptable species composition and forage production, except for approximately 20 acres (one percent) of Brushy Loam sites in the bottom of Joe Bush Gulch where noxious weeds are prevalent. The Timber Gulch (riparian) pasture has been rated as meeting Standard 3, with the exception of several acres (1 percent) along the drainage where noxious weeds are common. Overall vegetation production and species composition are

generally within acceptable thresholds. The Bear Ridge pasture has 99 percent of its range sites with plant communities within acceptable thresholds for healthy communities and within acceptable levels of desired plant communities. The remaining one percent is the same Foothill Swale area defined in the previous permit renewal in Timber Gulch proper, where noxious weeds are common along the drainage.

5.5.3. Direct & Indirect Effects – Current Management (Alt A)

Primary impacts to forage species under the grazing alternatives are potentially reduced vigor, reproduction, and recovery opportunity because of grazing use. Impacts to vegetation also include trampling by livestock. With livestock grazing there is a selective pressure against desirable forage plants that simultaneously favors less palatable species.

Powerline Allotment

In the Powerline allotment livestock grazing would continue to be authorized about 20 percent above the estimated carrying capacity through most of the growth period. Use would continue to occur mostly in the northern region of the allotment closer to water sources and where topography is less steep. Vegetation has established on pipeline corridors across the allotment and in general, the plant communities in this allotment appear to be maintaining under this scenario. Actual use from 2002 through 2012 averaged 60 percent of authorized AUMs. It is not clear how long forage production would be adequate under full livestock numbers.

North Dry Fork Allotment

Continuation of the current management grazing schedule in the North Dry Fork allotment would have all livestock graze as one herd in the west half of the allotment for an average of five to six weeks each year through the critical growth period, before rotating to the east half of the allotment. Under this schedule, after cattle are moved to the eastern end of the allotment, forage plants on the west half of the allotment would have some opportunity for regrowth. However, it would be in the hotter, drier part of the growing season to recover if moisture was adequate. It is likely that unless optimal precipitation occurs, forage plants in this area would be stressed, and have reduced vigor and increased mortality. Vegetation throughout the eastern end of the allotment would benefit from being deferred from grazing use until later in the growth period every year.

Since the last permit renewal, Mr. Lopez has developed additional low volume water sources in the west end of the allotment. These water sources have increased the amount of forage available to livestock and improved distribution, but have limited capacity in terms of the quantity of water they produce. Because of limited water availability, neither operator has adhered closely enough to this schedule to know if it would result in negative effects in the west end of the allotment. According to the permittees adhering to this grazing schedule would still be unfeasible and actual grazing use has more closely resembled Alternative B. Actual use since the last permit renewal, which includes several dry periods, has averaged 61 percent of authorized AUMs. Overall this alternative would be compatible with meeting Public Land Health Standard 3 for the east half of the allotment, but has potential to cause negative effects on the west half.

Plant vigor would likely be at a level that would allow plant communities to compete against establishment of noxious weeds in the east half of the allotment. The west half of the allotment would be grazed through the critical growth period (May 1 – June 15) yearly with no deferral. Forage plants would have the remainder of the growing season to re-grow and recover if moisture was favorable. In unfavorable years these plants would have minimal ability to recover and could remain at low vigor. There is potential for this grazing schedule to favor the establishment of noxious or invasive weed species in the west end of this allotment.

Main Dry Fork Allotment

In the Main Dry Fork allotment, livestock numbers would alternate being 55 head lower for the entire use period on even years. For both Alternatives A and B, the use period is long but occurs later in the growth period, allowing forage plants opportunity to grow, produce seed, and restore root reserves prior to being grazed. Under both Alternative A and B, livestock that drift down from Post Gulch are removed from the allotment throughout the grazing period. Reported actual use since the last permit renewal, which includes several growing seasons with below average precipitation, has averaged 77 percent of authorized AUMs. Overall, under this alternative, average livestock grazing related impacts to vegetation would be similar but likely slightly more, than under Alternative B which schedules removal of livestock through the later use period. Under either grazing alternative there are approximately 260 acres, primarily associated with forage areas that would continue to not meet Standard 3 due to noxious weeds and the amount of non-native annual species in those plant communities.

Native forage plants would have full opportunity to grow, replenish root reserves, and produce seed prior to being grazed. Again, the use period remains long, authorizing grazing until mid-November. Extended livestock use in the key forage areas, minimal litter accumulation, and more bare soils puts some sites at risk for weed establishment.

Little Hills Allotment (Dark Canyon Pasture)

Livestock grazing use in the Dark Canyon pasture (north half) would continue to be mostly dormant season with some use starting the middle of July on alternate years. The later growing season use on alternate years results in long overall duration of use (181 days possible). Deferring grazing until after the growth period and until later in the growth period allows forage plants to meet physiological needs and produce seed. Trailing, trampling, and potential heavy use in favored use areas are the primary likely effects of this extended use period, though the lower number of cattle initially lessens those impacts. In the years with the longer use period, there would likely be reduced amounts of litter in the areas where livestock make more use. Overall this alternative would allow native forage species the ability to compete with invasive, non-native species, but overtime the higher use level and associated reduced litter amounts would be less favorable than Alternative B. Actual grazing use since the last permit renewal has averaged only 15 percent of authorized AUMs, so it is not clear what the impacts would be if full grazing use occurred.

Segar Gulch Allotment

Continuation of current management in the Segar Gulch allotment would have the same livestock numbers and overall use period as Alternative B. Actual grazing use since the last permit renewal has averaged 70 percent of authorized AUMs. Under this alternative the north half of the Hay Gulch pasture would continue to be grazed at a fairly high stocking rate through the growth period yearly. The south half of this pasture would be grazed at a lighter intensity only in the fall after forage plants have completed growth and gone dormant. This rotation allows forage plants in the south use area full opportunity to meet physiological requirements and produce seed. But forage plants in the north use area are never allowed un-grazed growing season opportunity, which overtime has potential to cause negative shifts in plant community composition. The Joe Bush and Bear Ridge pastures would continue to be grazed with alternating intensity and timing every other year, either in the mid-summer or the later-summer. Grazing would be deferred through the entire critical growth period and alternating amounts of the general growing season. This use is compatible with maintaining plant health and vigor. However, as currently scheduled the Bear Ridge pasture experiences high grazing intensity that over time could reduce plant vigor and overall plant community health. Grazing in the Timber Gulch pasture would remain at seven days annually in either August or October and would be comparable to the Proposed Action. There are approximately 129 acres in the Segar Gulch allotment that would not be expected to improve under this alternative compared to approximately 94 acres under Alternative B.

The alternate year deferment from grazing until after the critical growth period in the Joe Bush and Bear Ridge pastures is favorable, however the long use period at high intensity in the Bear Ridge pasture increases the opportunity for weeds to spread. The late use period every other year in the Joe Bush pasture likely would have minimal effect on weed spread other than increasing dispersal of mature seeds. In the Timber Gulch pasture, the later growing season use is favorable for maintaining plant community health, but the higher intensity and longer duration use periods increase the chance of weed spread slightly compared to Alternative B.

5.5.4. Direct & Indirect Effects – Permittee's Proposals (Alt B)

Under Alternative B, livestock grazing schedules for each allotment allow deferment or rest from grazing for all or some portion of the growing season. Grazing use by pasture is scheduled within the estimated carrying capacity and average production for each unit (allotment/pasture), to better achieve utilization within the 40-60 percent range listed in the 1997 White River RMP.

Powerline Allotment

Scheduled use allows some early growing season deferment, allowing grazing through most of the growing season. After livestock are removed, forage species have some later growing season opportunity for re-growth. With this partial growing season deferment, forage species should retain their current level of vigor. Ensuring moderate utilization levels will allow for surface litter to protect soil surfaces, retain soil moisture and benefit seedling survival.

North Dry Fork Allotment

In the North Dry Fork allotment in Mr. Lopez' use areas, deferment will be provided by the proposed rotation through identified use areas. Additionally, in the three year rotation each use area will have a target utilization objective of "Light" two years and "Moderate" one year. Similarly for Shults Ranch, though the rotation through use areas stays the same, utilization levels alternate to allow for moderate, light, or incidental grazing use.

Additional water sources since the last permit renewal, especially in the western end of this allotment, have increased the amount of forage available to livestock and improved distribution. Flexibility in grazing management has been created with this increased forage availability. When forage and water is abundant, extending the grazing period while remaining within utilization objectives would provide additional growth opportunity and reduce grazing pressure in the Main Dry Fork allotment. This would benefit both forage and riparian resources. All of these factors should allow native plant communities to persist and compete against noxious and invasive weed establishment. Success in achieving the intended target utilization levels of this grazing rotation will depend on both livestock operators actively and timely moving and managing their livestock throughout the use period.

Main Dry Fork Allotment

In the Main Dry Fork allotment, livestock will enter the allotment in mid-July after the critical growth period but will remain through the growing season. This alternative schedules grazing use slightly below current even year levels and approximately 20 percent less than odd year levels. Use is still scheduled near the estimated carrying capacity for this allotment. Construction of drift fences (as identified in DOI-BLM-CO-110-2008-106-EA) to control cattle drift down to the Dry Fork of Piceance Creek has improved livestock management and helped define individual use areas. Optimizing distribution by ensuring functional water sources, providing salt at key locations, and actively herding livestock throughout the use period will help spread grazing pressure and benefit forage resources. The proposed use period remains long, authorizing grazing until mid-November. While the later grazing season use has less impact on forage species, the long use period especially in key forage areas, would likely experience higher than average utilization resulting in less litter accumulation and more areas with bare soil that is at risk for weed establishment. The risk of weed spread would be partially mitigated by on-going monitoring for, and treatment of, weeds by the BLM and the permittee.

Little Hills Allotment (Dark Canyon Pasture)

Proposed grazing use in the Dark Canyon pasture would occur entirely during the dormant season (11/1 – 1/1). Forage species have entire growing season deferment. Implementation of this alternative is expected to maintain plant community health in areas that are currently meeting Standard 3 for upland plant communities. The use duration and low stocking rate should produce relatively low utilization levels, allowing biomass accumulation over time to improve site conditions and allow native forage species to compete with invasive, non-native species. Those areas dominated by weedy annuals or noxious weeds will likely not change without other intensive targeted treatments.

Segar Gulch Allotment

Scheduled grazing use in the Segar Gulch allotment allows for full or partial growing season deferment in each pasture. As scheduled, each half of the Hay Gulch pasture would be deferred from grazing until later in the growth period every other year. Every other year, when each half is grazed earlier (4/25 through 6/30), there will be some early growing season deferment and some late growing season regrowth opportunity after livestock are removed. Grazing in the Joe Bush and Bear Ridge pastures also alternates, so every other year each pasture will be deferred from grazing until late August. On the alternate years grazing will still be deferred until well into the growing season (July 21).

Grazing in the small, steep Timber Gulch (riparian) pasture will be deferred until late in the growing season or until early in the fall, for a brief use period of 6 days. The proposed use period in the Timber Gulch pasture would be 15 days and 25 days shorter than under the current grazing schedule. All of the proposed use periods would benefit forage species by allowing them to grow un-grazed for the majority of the critical growth period at least every other year. Regardless of the deferment, some of the early seral communities that have crossed a threshold to annual plant domination will likely not make much improvement without intensive vegetation treatments. For all of the allotments and pastures associated with these permit renewals, adherence to the identified use areas, grazing schedules, and utilization levels of the Proposed Action are necessary to achieve the intended objectives of these grazing rotations. Adherence to the proposed grazing schedules would ensure deferrals and rotations to allow plant communities in each allotment or pasture opportunity for either growth prior to grazing or a regrowth and recovery period after grazing. These scenarios are all consistent with maintaining healthy native plant communities that are more resistant to invasion by noxious and invasive weed species. If both livestock operators actively manage their livestock throughout the grazing year and adhere to the grazing schedules, progress should occur toward improving or maintaining healthy rangelands.

5.5.5. Direct & Indirect Effects – No Livestock Grazing (Alt C)

No grazing by livestock would be a 100 percent reduction. Utilization of forage species would be limited to wildlife use, resulting in slight to light use across most areas of these allotments and pastures. Reduced disturbance and accumulation of residual soil surface litter would allow more opportunity for seed disbursal and seedling establishment. In the absence of livestock grazing, both cover and composition of perennial forage species would increase with the improved opportunity to meet physiological needs. Mid seral ecological sites, previously easily accessible to livestock, would likely experience the greatest benefit of increased perennial plant cover. Early seral sites with intact but suppressed perennial plant communities would experience a favorable shift in plant community composition. Early-seral sites dominated by invasive weedy annuals would show minimal improvement in plant community composition without intervention.

Proliferation of cheatgrass and other noxious weeds would be reduced because native grass communities would have improved ability to complete a full growth cycle without being grazed by livestock. Early seral sites with intact but suppressed perennial plant communities would

experience a favorable shift in plant community composition. Healthy early-seral (e.g., most of the Greasewood Fire) and mid-seral plant communities would likely experience the greatest benefit of increased perennial plant cover and vigor.

Benefits of weed detection by the permittees would be lost. Contributions by the permittees toward weed control on public lands would cease and noxious weed control would be entirely the responsibility of the BLM. If weed control efforts were not continued on private lands, untreated weeds would continue to spread onto public lands.

5.5.6. Finding on Public Land Health Standard 3 – Plant Communities

Overall 98 percent of the BLM acres analyzed are currently meeting this standard. Approximately two percent of BLM acres in these allotments and pastures are not meeting this standard. Because of sites dominated by weedy annual species with small root systems that are ineffective at stabilizing soils and livestock grazing related disturbances, there would be only minor improvement under Alternative B and no change with Alternative A. Over time in the absence of livestock grazing, just over half of these annual dominated sites would be expected to have improved plant community composition and soil conditions that would meet this standard.

5.6. Soil Resources

5.6.1. Analysis Issues

- Would concentrated livestock grazing or trailing result in loss of soil productivity due to compaction?
- Would livestock grazing result in increased erosion of fragile or saline soils due to loss of vegetative ground cover?

5.6.2. Affected Environment

Powerline Allotment

In the Powerline allotment the predominant soil type on approximately 450 acres is the Castner channery loam. It is a shallow well drained soil with moderate permeability and low water holding capacity resulting in moderate to rapid runoff and a moderate to high erosion potential. The next most prevalent soil type is the Rentsac-Piceance complex, which is shallow and well drained with moderate to rapid permeability but with a low water capacity. Runoff is medium, and the hazard of water erosion is moderate to high. These soil types are typically located in steeper terrain.

North Dry Fork Allotment

In the North Dry Fork allotment, several small water sources have been developed since the last permit renewal, expanding the area available to livestock, which allows for increased distribution. The predominant soil type (over 11,000 acres) in this allotment is the Rentsac channery loam, comprising over 95 percent of the total acreage located within this allotment. These soils are characterized as shallow and well-drained. Permeability is moderately rapid and

available water capacity is very low, runoff is rapid, and the hazard of water erosion is moderate to very high. This soil type generally occurs on ridges, foothills and side slopes.

Main Dry Fork Allotment
In the Main Dry Fork allotment there is a mix of predominant soils types including Castner and Rentsac channery loams (approximately 3,600 acres), which are as described above. Irigul-Parachute complex and Irigul channery loam (approximately 5,800 acres) are the other prominent soil types of this allotment. These soils are shallow well drained soils found on ridges and mountainsides. They are characterized as moderately permeable, shallow and well drained. Their available water capacity is low, runoff is medium to rapid, and the hazard of water erosion is very high.

Little Hills (Dark Canyon Pasture)
In the north half of the Dark Canyon pasture predominant soils are the Castner channery loam and the Rentsac channery loam (approximately 2,804 acres). Their characteristics are described above for the Powerline and North Dry Fork allotments.

Segar Gulch Allotment
In the Segar Gulch allotment, the predominant soils types are the same as those described above, including the Irigul-Parchute complex (approximately 2,800 acres), Castner channery loam (approximately 2,300 acres), Irigul channery loam and Rentsac channery loam (approximately 3,000 acres). Another prominent soil type in this allotment is the Redcreek-Rentsac complex (approximately 1,400 acres). It is a shallow and well-drained soil found on mountainsides and ridges. Its permeability is moderately rapid and it has a very low available water capacity. Runoff is medium, and the hazard of water erosion is moderate to high.

5.6.3. Direct & Indirect Effects – Current Management (Alt A)

Powerline Allotment
Topography and distance to water result in more grazing use on private lands so grazing related impacts to soils and vegetation would remain at a low level. This alternative is not expected to create any soil related problems on public lands in this allotment.

North Dry Fork Allotment
This schedule would result in more intense livestock related impacts to soils every year early in the growing season when soil moisture content may be higher. Soil and root disturbance and soil compaction could be higher in the west end of the allotment under this alternative compared to the briefer use periods associated with rotating through more and smaller use areas in Alternative B. On the east end of the allotment soils would likely have less livestock related impacts because grazing use would be delayed until soils are dryer, more firm, and more resistant to hoof action disturbance and compaction. Overall this alternative would be compatible with meeting Public Land Health Standard 1 for the east end of the allotment. There are no obvious indications that this current grazing use is negatively affecting the west end of the allotment. Where plant communities are dominated by undesirable annual plant species

(approximately 209 acres) soil stability is likely reduced and those conditions would be expected to remain unchanged under this alternative.

Main Dry Fork Allotment
The use period is long occurring from later in the growth period when soils are drier into the dormant season. Overall, under this alternative livestock grazing related impacts to soils would be similar to Alternative B. Approximately 260 acres, primarily associated with preferred forage areas would continue to not meet this standard under any of the alternatives without some specific management actions such as weed treatment.

Little Hills Allotment (Dark Canyon Pasture)
The extended use period beginning in the late summer, and even with the lower number of cattle, likely causes some trailing and trampling impacts in the favored forage areas of the valley. The dormant season use would not be expected to cause negative impacts to soils. The estimated 40 acres in this pasture that are dominated by weedy annual species or noxious weeds would not be expected to change under any of the alternatives without some specific management actions such as weed treatment.

Segar Gulch Allotment
Under this alternative livestock use in the Main Hay Gulch (north) pasture would continue to occur for an extended timeframe (76 days) through the entire critical growth period when soils are more moist and soft. Use in the Main Hay Gulch (south) pasture would continue to be deferred until the late fall. The longer duration spring grazing use likely causes some level of impacts to soils from trailing and trampling. Livestock use in the Joe Bush and Bear Ridge pastures alternates in duration and timing where grazing occurs either mid-summer or early fall. Every other year the Joe Bush pasture is scheduled to be grazed again in the fall. Better dispersal during this cooler period would likely have limited effects to soils. Every other year each pasture experiences grazing use during the hotter timeframe when livestock are less likely to disperse and tend to congregate more in cooler shaded areas (i.e., valley bottoms), causing a higher degree of hoof action impacts in these areas. The current grazing schedule results in Bear Ridge being grazed above estimated forage capacity so soils in favored forage areas are likely experiencing higher trailing and trampling impacts. Use in the Timber Gulch pasture would remain at seven or eight days annually in either August or October and impacts to soils would be negligible. There are approximately 87 acres in the Segar Gulch allotment that would not be expected to improve under this alternative.

5.6.4. Direct & Indirect Effects – Permittee's Proposals (Alt B)

Powerline Allotment
Due to distance to water and steeper topography the majority of livestock grazing use would not be on the BLM portion of this allotment, so impacts to soils and vegetation would continue to be at a low level. Currently all soils in this allotment are meeting this standard. Areas of existing pipeline corridors have potential for erosion or settling due to the disturbance. Monitoring and follow-up treatment of any identified erosional spots would resolve any potential problems.

North Dry Fork Allotment

There would be an immeasurable increase in the amount of soil disturbance associated with livestock trailing and trampling. Livestock would be divided into two herds, each with general (unfenced) designated use areas they would be rotated through. The proposed designated use areas would concentrate livestock into specified areas for shorter timeframes. Reduced duration of use would allow improved opportunity for forage species to either grow before grazed occurs or to regrow after the livestock leave that area. This grazing schedule would result in more concentrated trampling effects, but for reduced timeframes, allowing for longer recovery periods between grazing years. Overall this change is expected to be compatible with acceptable soil conditions, especially where vegetation benefits from shortened use periods and the identified target use levels. There are around 200 acres in the North Dry Fork allotment with plant communities dominated by undesirable plant species. Under this alternative the majority of those sites would remain largely unchanged.

Main Dry Fork Allotment

Grazing would occur later in the growth period when soils are drier and extending into the dormant season.There would be an average of 5 percent less use compared to the current management alternative. This would create a slight reduction in impacts to soils associated with trailing and trampling. Due to the current level of weedy annual and invasive/noxious plant species approximately 260 acres primarily associated with forage areas would continue to not meet this standard under any of the alternatives without some specific management actions such as weed treatment..

Little Hills Allotment (Dark Canyon Pasture)

Soils in the north half of the Dark Canyon pasture would not be expected to have negative impacts from this level of use. Due to the current level of weedy annual and invasive/noxious plant species approximately 40 acres in the lower end of this pasture that would not be expected to change under any of the alternatives without some specific management actions such as weed treatment.

Segar Gulch Allotment

Changes in the grazing schedule for the Hay Gulch pasture would reduce the intensity of use in the north use area but would allow it deferment from grazing use until later in the growth period every other year. Timing would alternate yearly, so whether the earlier or later use period occurs, soils are generally drier by late April and less susceptible to hoof impacts.

Shifts in duration and intensity will have coincident effects to soil resources in the Joe Bush and Bear Ridge pastures. When cattle are in either of these pastures during the earlier hotter timeframe (mid-July) they tend to congregate more in shaded areas, causing higher impacts to soils at those sites. When cattle are in either pasture in the later use period, the weather has begun to cool off and they tend to distribute more so impacts will be less intense and more disbursed. This should allow some level of recovery in each pasture between grazing years.

The use period in the Timber Gulch pasture is short and delayed until late summer or early fall and should have negligible impacts to soils. There are approximately 94 acres in the Segar Gulch allotment that currently are not meeting Standard 1 due to noxious weeds and non-native annual plant domination as well as historic and recent livestock grazing practices that would not be expected to improve under any alternative unless or until weeds are treated and improvements occur in the plant community composition.

5.6.5. Direct & Indirect Effects – No Livestock Grazing (Alt C)

The No Livestock Grazing Alternative would provide the greatest protection for soils within these grazing allotments. Livestock related impacts such as soil compaction, trailing, and trampling would no longer affect soils. The greatest benefits would be noticed in the mid-seral and healthy early-seral sites where plant communities would be able to progress through succession. It is estimated that about half of the early-seral sites that are currently dominated by undesirable plant species (non-native annuals and noxious/invasive weeds) if relieved from grazing pressure would recover to plant communities and soil conditions that would meet this standard. Many of the early-seral sites that are not meeting public land health standards would not improve without intensive management actions and would continue not meeting this standard.

5.6.6. Finding on Public Land Health Standard 1 – Upland Soils

Overall 98 percent of the BLM acres analyzed are currently meeting this standard. In general, for every allotment covered by this document under either alternative (A or B), where grazing is rotated to allow growing season deferment, regrowth opportunity after grazing occurs, or to keep utilization levels within desired levels there would be a benefit to native perennial grass species and litter accumulation in most mid-seral and the healthy early-seral plant communities. Where there are improvements in plant community composition and litter accumulation, soil surfaces would be protected better. Those areas would likely make progress toward meeting Standard 1. Soils occupied by late seral and PNC plant communities would be minimally influenced by the proposed grazing schedules and would continue to meet Colorado Public Land Health Standard 1. Areas identified as having crossed a threshold to annual plant domination, without intensive management in-puts, would likely continue to not meet this standard regardless of the grazing use.

5.7. Riparian Areas and Aquatic Wildlife

5.7.1. Analysis Issues

- How would livestock grazing affect proper functioning condition of riparian areas and springs?
- Would livestock grazing degrade habitat for native fish and amphibians (including special status species)?

5.7.2. Affected Environment

There are man-made ponds on BLM administered lands in most of these allotments, some of which have sufficient water holding capabilities to support small lentic riparian systems. Riparian plants in these ponds typically include cattails and tamarisks. These riparian systems are artificial (i.e., man-made), limited in extent, and were originally constructed for livestock watering. Therefore, no further analysis of riparian impacts of these small artificial lentic riparian systems associated with livestock ponds will be conducted.

Table 34 outlines the riparian systems and associated reaches within the allotments and their current rating.

Table 34. Riparian Systems and Functional Condition Ratings

Allotment	Riparian System	Reach	Length (miles)	Current Rating[1] and Trend	Meeting Standard 2
North Dry Fork	Lower Piceance Creek	1	2.4	FAR up	Yes
		2	2.0	PFC	Yes
Main Dry Fork	Dry Fork Piceance Creek	1	1.8	FAR up	Yes
		2	1.2	FAR down	No
		3	0.3	FAR not apparent	Yes
Little Hills (Dark Canyon Pasture)	Dark Canyon	1	0.3	FAR upward	Yes
Segar Gulch	Hay Gulch	1	0.5	FAR not apparent	Yes
		2	1.4	FAR not apparent	Yes
	Joe Bush Gulch	1	0.6	NF	No
		2	2.1	NF	No
		3	1.2	NF	No
	Timber Gulch	1	1.2	PFC	Yes
		2	1.4	PFC	Yes
		3	1.8	FAR down	No

[1]PFC= Proper Functioning Condition, FAR=Functional at Risk; NF=Non-Functional

Powerline Allotment

There are no riparian or wetland resources associated with the Powerline allotment.

North Dry Fork Allotment

Approximately 4.4 miles of Piceance Creek are included near the west edge of the North Dry Fork allotment. Piceance Creek is a large perennial low gradient system that, in this area, is vegetated by mostly herbaceous species such as reed canary grass, sedges, and rushes. Young tamarisk were noted in both reaches during 2008 assessments, however, the tamarisk leaf beetle has defoliated these plants and they show reduced vigor and have large amounts of dead material. Compared to the 1995 assessment, the vegetation distribution and composition appears to have improved, though the coyote willows are currently few and scattered. Water sources in the western end of the allotment that have been developed since the last permit renewal would

allow improved livestock distribution further away from Piceance Creek. Reach 1 was rated as high Functional at Risk with an improving trend. Reach 2 was rated as Properly Functioning. Upstream factors including heavy sediment loads, irrigation and ongoing development throughout the Piceance Creek corridor and upstream flow influences (irrigation) were noted as factors that put the lower end of Piceance Creek at risk and warrant future monitoring. While there are various factors beyond management control that are influencing Piceance Creek, livestock grazing does not currently appear to be having a negative influence to this system in the North Dry Fork allotment. This section of Piceance Creek is meeting the land health standards.

Piceance Creek is capable of supporting higher order aquatic vertebrate species. This system provides habitat for native speckled dace in addition to BLM sensitive flannelmouth sucker and northern leopard frog.

Main Dry Fork Allotment

In the Main Dry Fork allotment there are approximately 3.3 miles of the Dry Fork of Piceance Creek, a medium priority system, on BLM lands. Reaches 1 and 2 were assessed in 2011 and given a rating of functional-at-risk. Reach 1 was shown to have an upward/improving trend and reach 2 was shown to have a downward trend. In reach 2, riparian vegetation was noted as minimal, being limited to isolated patches of rushes and some scattered occurrences of early-seral riparian species. It was noted that the lower end of reach 2 showed far more lateral riparian expression with more riparian vegetation present. Reach 3 was inventoried and assessed in 2010 and given a rating of functional-at-risk with no apparent trend. All reaches had comments of bank shearing, trampling and apparent livestock impacts/use. Vegetation noted in the reaches includes sedges, rushes, some early-seral riparian species and boxelder. Noxious weeds were also noted as being common throughout.

Little Hills Allotment (Dark Canyon Pasture)

In the north half of the Dark Canyon pasture there is roughly 0.3 mile of channel that supports riparian vegetation. The channel at the southern-most end of this use area is at the lowest extent of adequate moisture to support riparian vegetation. There is a spring with riparian vegetation further to the south in the area not addressed by this permit renewal.

Segar Gulch Allotment

The Segar Gulch allotment has a total of 10.2 miles of riparian systems associated with Hay Gulch, Joe Bush Gulch and Timber Gulch. Hay Gulch and Timber Gulch are small marginally perennial systems where, depending on the year, flow becomes more intermittent. Joe Bush is currently rated as an intermittent system that flows down a steep coarse shaley channel in a narrow valley bottom. Similar to the description in the WR-01-051-EA, recent assessments noted evidence that past and current livestock grazing practices are influencing the condition of these riparian systems. As a whole, 62 percent of the riparian systems in the Segar Gulch allotment are meeting Standard 2 for riparian systems. Bank disturbance associated with livestock trailing in the channel, the lack of riparian obligate species and prevalent noxious weeds were listed as factors causing Joe Bush Gulch to not meet this standard.

The 1.9 miles of Hay Gulch was previously divided in to five reaches, none with high potential to be a well-developed riparian system mainly due to limited contact with ground water. The lower three reaches have no riparian character and are not discussed further. The upper two reaches were assessed in August 2011 and given a rating of functional-at-risk with no apparent trend. Factors noted included a lack of herbaceous riparian vegetation and trailing influences. Reach 1, a small entrenched channel dominated by red-top grass and other facultative riparian and upland species, lacked any meaningful riparian obligate species and showed some impacts associated with trailing in and adjacent to the channel. Reach 2 appears to be ephemeral or intermittent and supports only woody riparian species including boxelder and woods rose. Vegetation throughout both reaches included mostly facultative species including redtop, foxtail, aster, yarrow, mullein, yellow clover, and boxelder. Noxious weed species were common.

The 3.9 miles of Joe Bush Gulch were assessed in July 2011 and again in July of 2016. In both assessments all three reaches were rated as non-functional. Bank disturbance associated with livestock trailing and trampling, lack of riparian obligate vegetation, and noxious weeds were the main factors contributing to this rating. This channel is confined in a steep, narrow drainage bottom where livestock tend to trail in the channel to graze vegetation adjacent to the channel. In many places the channel has cut down to bedrock and currently appears to function as an ephemeral drainage. In places, the banks were raw and eroding. There was a complete lack of obligate riparian species throughout the majority of the system with the exception of three remnant patches of Nebraska sedge and several large older willows. The 1997 assessment noted similar lack of riparian vegetation, but banks appeared less disturbed, and possibly more stable at that time. Noxious weedy species were common at all assessments. Eliminating livestock related impacts in some areas of the channel would be beneficial in determining the potential of this system. Additionally, coordinated weed treatment would allow improvements in the adjacent plant community.

The 4.4 miles of Timber Gulch were assessed in July 2008. Reaches 1 and 2 were rated as proper functioning and Reach 3 was rated as functional-at-risk with a downward trend. Reach 1 was described as more of an ephemeral reach with minimal riparian vegetation but appeared to be functioning near its potential. Reach 2 was being strongly influenced by the earlier development of ponds on the channel and had the greatest diversity and extent of riparian vegetation including rushes, sedges, cattails, willows, and cottonwoods. Compared to the 1995 assessment, the presence and diversity of riparian species appears to have increased where the impoundments retain water in this reach. Riparian potential of this reach has increased with the retention of water in this section. Woody species such as aspen and willow have continued to increase. Reach 3, rated as functional-at-risk (non-functional in 1995) was described as being influenced by controlled flows upstream (impoundments), heavy grazing and trampling effects, with the lower third being non-functional due to down-cutting and entrenchment. Vegetation was heavily used and lacked vigor. Noxious weeds were common throughout all three reaches but were most pervasive in Reach 3. Based on the current and past assessments Timber Gulch has potential for improvement, especially in Reach 2 where there is increased retention and persistence of water.

5.7.3. Direct & Indirect Effects – Current Management (Alt A)

Impacts to riparian areas from livestock grazing use would be similar under both grazing alternatives. Direct impacts would include bank disturbance, trampling in the channel, and utilization of vegetation adjacent to the channel. Trailing and trampling reduce bank stability by disturbing vegetation and soils making them less able to resist erosion. Channels with inadequate vegetation and disturbed banks are less resilient, indirectly making them more vulnerable to erosion during high flow events. Where grazing use coincides with these small riparian areas, associated impacts tends to be concentrated because of easy access to forage, water, shade during hot periods, and in some places the channel provides a trailing route.

North Dry Fork Allotment

In the North Dry Fork allotment, the grazing schedules would result in 307 head of livestock grazing in the west end of the allotment with access to Reaches 1 and 2 of Piceance Creek for about 30 days from mid-April to mid-June each year. This schedule results in more livestock with access to the riparian area for a longer timeframe yearly compared to Alternative B. Though not measurable, impacts in the riparian area would be expected to be greater under this alternative compared to the other alternatives.

Main Dry Fork Allotment

There are three somewhat defined periods of livestock use along the Dry Fork of Piceance Creek in the Main Dry Fork allotment. In early June, Cross-Slash-Four cattle are trailed through this area on the road in one day and have minimal effect on the channel. In mid-July, there are several days of livestock use along this system as Shults Ranch's and Mr. Lopez' cattle are drifted through into their respective use areas further to the south and west. Several days of use would occur again in the fall as cattle are trailed back through. Throughout the use period, as Mr. Lopez' cattle drift northward into the area adjacent to the riparian channel, they are removed from the allotment and put into the Segar Mountain allotment. This limited amount of time that livestock access the channel reduces trailing, trampling, and utilization impacts in and adjacent to the channel. If livestock are allowed access to this channel for extended parts of the grazing period, negative impacts would be expected because of the limited extent of appropriate riparian vegetation present to protect and stabilize the banks.

Segar Gulch Allotment

In the Segar Gulch allotment, continuing under the current grazing schedules would allow growing season deferment from livestock grazing in the area around Reaches 1 and 2 of Hay Gulch (south half of pasture). Livestock grazing during the dormant season would be expected to have minimal impacts on these herbaceous dominated riparian reaches. The recent (2014) drilling of the Left Hand Hay Gulch well will allow for better adherence to this schedule. Prior to the well, lack of reliable water in the north part of the Hay Gulch pasture likely resulted in some livestock drift into the area surrounding Reach 1 and 2 of Hay Gulch. Wildlife use in the general area will likely continue, though impacts if any would be minimal.

Livestock use in the Joe Bush and the Bear Ridge pastures alternate 38 and 46 days respectively in even years and 75 and 46 days respectively in odd years. The second use period in the Joe

Bush pasture is late in the fall when livestock are able to distribute further if snow is available to provide some of their water needs. Based on the most recent riparian assessments, livestock related impacts associated with these use periods combined with the steep topography and the tendency for livestock to trail in the Joe Bush channel, does not appear to allow improvement in conditions. Similar impacts can be seen for Timber Gulch Reach 3 in the Bear Ridge pasture, though its function may to some extent be influenced by flow and sediment contributions from the Joe Bush system or by the impoundments above in Timber Gulch. Low soil moisture limits the potential for development of a riparian plant community in this part of Timber Gulch. Additionally the long use period, higher stocking rates, trampling, related erosion, and noxious weeds combine to prevent conditions in this reach from improving.

Current grazing use in the Timber Gulch (riparian) pasture authorizes grazing for approximately 7 days in either mid-summer or early fall on an even/odd year rotation. Steep topography and limited upland water sources result in most grazing use occurring in association with the riparian area. However, the current timing, limited duration and level of use appear to be compatible with properly functioning riparian condition in Reaches 1 and 2 of Timber Gulch.

5.7.4. Direct & Indirect Effects – Permittee's Proposals (Alt B)

North Dry Fork Allotment

Alternative B would result in light or moderate livestock grazing use along Piceance Creek for 15-20 days in late April. Reach 2 could be grazed lightly again for 15-20 days in early July two out of three years, allowing approximately six weeks for recovery between grazing use periods. While there would be direct impacts to the channel including minor bank disturbance from trampling and a reduction in herbaceous riparian vegetation, this short duration use would be expected to allow time for recovery of riparian vegetation, which provides bank cover and promotes channel stability for aquatic species. The proposed grazing system differs little from what is currently practiced, and based on recent stream assessments, livestock grazing does not appear to be a causal factor in the functioning condition of this system (rather, upstream irrigation-related effects). The proposed grazing system would not be expected to have a negative influence on aquatic wildlife or associated habitats and this use appears to be compatible with the riparian function of these two reaches of Piceance Creek.

Main Dry Fork Allotment

Impacts would be similar to Alternative A because use along the Dry Fork of Piceance Creek channel would still occur for three relatively brief periods. With prompt and consistent herding to remove any cattle that may access the channel, the proposed grazing use should allow for minor improvements along the Dry Fork of Piceance Creek.

Segar Gulch Allotment

Livestock grazing in the Hay Gulch south use area includes Reach 1 and 2 of Hay Gulch every year but at alternating time frames. On even years, cattle would be present for 67 days from late April through June. The following year livestock would only be in this use area for 20 days in July. In 2014 the Left Hand Hay Gulch well was drilled. This water source provides a new upland water source in the north half of the Hay Gulch pasture and improves the utility of a large

surrounding area. With active herding there should minimal livestock use in the Hay Gulch channel below, until cattle are driven to the south half of this pasture. It is anticipated that with consistent herding to ensure cattle stay in each specified use area, along with the distinct use period, the fairly limited duration, and the long recovery period, there should not be negative impacts to the Hay Gulch channel.

Under Alternative B, alternate year use periods in the Joe Bush pasture will result in livestock use at a similar time period one year, and more than two months earlier the next year. The late fall use period will be eliminated. On even years the Joe Bush pasture will be grazed for 43 days and on odd years for 38 days. The proposed schedule would also incorporate a 43 percent decrease in AUMs scheduled for the Joe Bush pasture every other year by eliminating the late fall use period. Due to the steep topography and tendency for livestock to trail in the Joe Bush channel it is likely that impacts to the riparian system will remain similar regardless of the alternative selected. However it would also be difficult to make an accurate comparison between alternatives when it appears likely that the current grazing schedule has not been followed closely in the past.

For all reaches of Joe Bush channel, strict adherence to the proposed grazing schedule will be necessary to determine what level of impacts may be associated with the proposed grazing schedules. Though currently rated as non-functional, it appears that this system has the necessary components and potential to improve and return to a higher functioning condition. Implementation of the mitigation measures listed below will be necessary to help determine the actual potential of this system and to make informed determinations for meaningful changes in livestock management to allow improvements in the system. Implementation of the proposed projects will also allow improved condition in those areas (approximately one-tenth of a mile).

For Reaches 1 and 2 of Timber Gulch, it appears that limiting the duration of grazing use has been a factor in maintaining properly functioning riparian conditions in the pasture. Proposed grazing will continue to be short duration and is expected to be compatible with allowing continued improvement of Reaches 1 and 2. Reach 3 of Timber Gulch is below the confluence with Joe Bush Gulch and is in the Bear Ridge pasture. It is unclear, but conditions in the lower end of this reach may be to some extent influenced by the Joe Bush channel above or by the impoundments above. Low soil moisture will continue to limit its potential for development of a riparian plant community. Proposed use in this pasture will be 12 and 17 days shorter and at 37 and 26 percent lower intensity. This is expected to allow for improvements in this reach of Timber Gulch.

5.7.5. Direct & Indirect Effects – No Livestock Grazing (Alt C)

As previously described in CO-110-WRFO-01-051-EA, the no grazing alternative would produce the fastest short-term improvement in the Timber Gulch and Dry Fork of Piceance riparian systems with immediate reduction in bank and channel disturbance. Hay Gulch would also show improvement, but apparent marginal moisture regimes would result in slower, longer-term improvements. Joe Bush would immediately benefit from reduced bank and channel disturbance but again, with marginally adequate moisture to allow riparian development, its

improvement would be longer-term. There would be minimal improvement to riparian conditions associated with Piceance Creek under this alternative because livestock are not currently impacting this portion of the system. With continued presence of the tamarisk leaf beetle, the presence and spread of tamarisk will be reduced. Herbaceous noxious weeds would continue to be present in these systems under this alternative, though native vegetation would over time be better able to compete in the absence of selective livestock grazing pressure.

5.7.6. Finding on Public Land Health Standard 2 – Riparian Systems and Water Quality

Riparian areas are classified as meeting Standard 2 of the Colorado Public Land Health Standards if they have been rated as being in Proper Functioning Condition or being Functional-at-Risk (FAR) with upward or static (no apparent) trend. Riparian areas that are FAR with a downward trend or Non-Functional (NF) are classified as not meeting Standard 2. Of the 17.9 miles of riparian systems associated with these permit renewals approximately 11 miles currently meet Standard 2 for riparian systems and 6. 9 miles do not currently meet this standard. Some of these systems or reaches have limited potential for improvement either due to limited flows, ephemeral/intermittent moisture, or, especially in the case of Joe Bush Gulch, fragile erosive substrates in conjunction with steep surrounding topography that results in trailing and or trampling disturbance of channels and banks. Noxious weeds contribute to the current condition of these systems. Implementation of Alternative B with adherence to the grazing schedules would be expected to allow for minor indiscrete improvements throughout the riparian systems associated with these permit renewals. Implementation of the proposed mitigation measures would improve understanding of potential of the Joe Bush riparian system to allow progress toward meeting Standard 2.

5.7.7. Mitigation Measures and Residual Impacts

1. The BLM and Shults Ranch will work cooperatively to:

    a) Secure funding to install fences to create two relatively small exclosures (100-200 feet long) at identified locations along and across the Joe Bush channel to prevent livestock use at those sites (Location 1 - Latitude: 39.907400389, Longitude: -108.009239778 Location 2 – Latitude: 39.9185903889 Longitude: -108.04030922778).

    b) Use large woody material at identified locations along the Joe Bush channel to create barriers along and across short (100-200 foot) sections of the channel to prevent livestock from accessing the channel (Location 1 – Latitude: 39.90742872, Longitude: -108.0120376111; Location 2 – Latitude: 39.90820872, Longitude: -108.01574594).

These projects have been addressed in 17-0017-CX so implementation can occur as soon as funding or labor is secured.

2. To reduce trailing and trampling impacts to the Dry Fork of Piceance Creek, throughout the grazing period in the Main Dry Fork allotment, promptly and consistently remove cattle that drift down to access the channel or herd them back to the primary use areas.

3.
Continue to spray weeds on the benches adjacent to and near riparian drainages including the Joe Bush channel to gain control and reduce the presence of noxious. Additionally there are several small patches of leafy spurge along the channel that will be high priority to eradicate as part of this effort.

4. Shults Ranch will coordinate a site visit with appropriate BLM staff to conduct necessary field work to analyze re-development of an existing spring development near the head of the Joe Bush drainage (estimated location - NAD 83 Zone 13 UTM 242856, 4421693) and the access route to it. This would provide a reliable upland water source for livestock to reduce impacts to the Joe Bush Gulch channel. If this project is approved, the BLM would provide a trough and Shults Ranch would provide other materials and labor to redevelop this spring. Shults Ranch would sign a Cooperative Maintenance Agreement for the spring development and the access route to it.

5. Livestock operators will continue to work cooperatively with the BLM to identify opportunities to develop upland water sources to improve distribution into areas away from riparian systems. Identified projects will be grouped for NEPA analysis.

5.8. Surface and Ground Water Quality

5.8.1. Analysis Issues

- How would livestock grazing affect surface water quality and spring discharge?

5.8.2. Affected Environment

The allotments are located in a semi-arid climate receiving annual precipitation ranging from 8 inches in the North Dry Fork allotment to 20 inches in the southeastern Segar Gulch allotment. Typically, precipitation occurs as snow during winter months and high intensity rainfall during the summer. Surface water is drained from the allotments by a network of poorly developed intermittent (flows seasonally) and ephemeral (flows following a storm) streams. The baseflow (low water level flows) are maintained by an extensive network of springs, which are located throughout the allotments.

Section 303(d) of the federal Clean Water Act requires states to identify water bodies or stream segments that are water quality limited. Those water quality limited segments currently identified in Colorado are identified in the Colorado Department of Public Health and Environment 2016 303(d) listing. Water quality limited segments are those water bodies or stream segments which, for one or more assigned use classifications or standards, the classification or standard are not fully achieved. Once listed, the State is required to quantify the amount of a specific pollutant that a listed water body can assimilate without violating applicable water quality standards and to

apportion that allowable quantity among the different pollutant sources. The allotments could potentially impact water quality in the Dry Fork of Piceance Creek (Water body ID – COLCWH15_A). The Dry Fork of the Piceance supports interrupted perennial flows. During late-summer, several reaches within the Dry Fork will dry up. Currently, Dry Fork is listed as impaired for failing to support bugs (macroinvertebrates).

5.8.3. Direct & Indirect Effects – Current Management (Alt A)

Based on total AUMs, Alternative B (permittee's proposals) proposes 3,622 AUMs each year and Alternative A (continuation of current management) proposes 4,041 (odd year) or 3,645 (even year) AUMs with very similar on/off dates. As such, the direct/indirect effects detailed under Alternative Bwould be very similar to the current management in regards to surface and ground water. It would be expected, since continuation of current management (Alt. A) would have 419 (odd year) or 23 (even year) more total AUMs, the direct and indirect effects discussed in the permittee's proposals, would be proportionally higher under Alternative A. Overall the shifts in season of use would have no different effects between alternatives to surface and ground water resources.

5.8.4. Direct & Indirect Effects – Permittee's Proposals (Alt B)

In-terms of water quality, the primary concern is Timber Gulch creek located in the Timber Gulch pasture. As discussed in the Riparian Areas and Aquatic Wildlife section 5.7, in an average precipitation year Timber Gulch creek maintains perennial flow. The FAR rating for Reach 3 was based on the observations of in-channel stock ponds which reduce flows, heavy grazing and trampling effects, and channel down cutting (gets vertically deeper or entrenched), which contributes to the downward migration of the near-surface aquifer. The biggest concern with a migrating stream channel is increased sediment suspension/transport during spring runoff and intense summer rainfall events, and the subsequent impacts to downstream surface water quality.

The downward migration of the near-surface aquifer potentially results in diminished spring discharge and subsequent reduction in stream baseflow, loss of riparian vegetation, and colonization of the drying floodplain by invasive annuals. In years with above average snow and rain seasonal stream flows would extend later into the summer, potentially resulting in extended attraction and congregation of livestock in the stream channel and floodplain. The grazing period 4/16 to 10/6 (11/5 odd years Alternative A) would overlap the snowmelt and intense summer rainfall periods when streambanks and stream channels are most susceptible to damage by livestock, which could perpetuate the observed entrenchment.

<u>Ground Water</u>
With groundwater, an extensive network of groundwater expressions (springs) are located within the Segar Gulch and Main Dry Fork allotments. These springs provide beneficial usage to wildlife and livestock and, maintain the baseflow within Timber Gulch and Dry Fork of the Piceance. Concentration of cattle at spring sources within these allotments could result in reduced surface water quality, diminished groundwater discharge, and if excessive, loss of the

spring. If excessive impacts to springs are observed during spring health surveys, fencing of spring source will be considered.

5.8.5. Direct & Indirect Effects – No Livestock Grazing (Alt C)

With no livestock grazing, there would be no direct livestock related impacts to the surface and groundwater. Indirectly, the surface water quality and quantity would benefit from reduced stream channel disturbance associated with hoof action on the stream banks and bottom. Groundwater, specifically springs, would benefit from the reduction of hoof impacts and increased riparian vegetation in and around the spring source. As a result, the quality and quantity of discharge from the spring would improve overtime.

5.8.6. Finding on Public Land Health Standard 5 – Water Quality

Piceance Creek is listed as a use protected (UP) stream, not warranting special protection with an outstanding waters designation (refer to CWQC Standards No. 31, 10/02/2003, 31.8.2(b) for a detailed explanation of UP). Neither Alternative A nor B would be expected to negatively impact water quality beyond the current designation. There is not current water quality monitoring data for these allotments, especially for ephemeral and intermittent systems.

5.8.7. Mitigation Measures and Residual Impacts

If excessive impacts to springs are observed during spring health surveys, fencing of spring source will be considered.

5.9. Raptors and Migratory Birds

5.9.1. Analysis Issues

- Would livestock grazing affect available vegetative cover for ground nesting migratory birds?
- Would livestock grazing result in substantial reductions in seed production (which are important forage resources for some migratory birds and for the small mammal prey base for raptors)?

5.9.2. Affected Environment

A wide variety of migratory birds nest in the shrubland and woodland communities throughout the allotments during the breeding season. More common species include: spotted towhee, green-tailed towhee, orange-crowned warbler, Virginia's warbler, MacGillivray's warbler, vesper sparrow, Bewick's wren, black-throated gray warbler, gray flycatcher, and blue-gray gnatcatcher. There are no specialized or narrowly endemic species known to inhabit the allotment however, the FWS recognizes several species that inhabit the allotment as birds of conservation concern (BOC), including juniper titmouse, pinyon jay, and Brewer's sparrow (also BLM sensitive). The BOC list identifies birds that, without conservation actions, may become candidates for listing under the ESA. In general, most birds return to breed by late-April or early-

May and begin nesting in earnest by the middle of May. Most young are fledged by mid to late July.

Mature components of pinyon-juniper and Doug fir woodlands provide nesting substrate for several woodland raptors including red-tailed hawk, sharp-shinned hawk, Cooper's hawk, northern goshawk (BLM sensitive) and several owl species. Cliffs and rock outcrops in the project area may provide nesting habitat for golden eagle, falcons and red-tailed hawks. There are approximately two dozen documented raptor nests with the North Dry Fork and Segar Gulch (Hay Gulch) allotments, although it is almost certain that the woodlands within the Main Dry Fork, Dark Canyon and Segar Gulch (Joe Bush, Bear Ridge and Timber Gulch) support nesting raptors as well.

5.9.3. Direct & Indirect Effects – Current Management (Alt A)

Current grazing in the Main Dry Fork, Joe Bush, Timber Gulch and Segar Gulch allotments (with the exception of Hay Gulch East) does not coincide with and has little to no potential to directly disrupt migratory bird nesting activities. Dormant season use will likely reduce the amount of residual cover however, livestock removal by late-fall to early winter will allow for unaffected growth prior to and throughout the entire migratory bird nesting season.

Current grazing use of the North Dry Fork andSegar Gulch allotments(Hay Gulch East pasture) encompasses the entire migratory bird nesting period. Use of the North Dry Fork allotment begins roughly one month prior to and continues throughout the nesting season annually (4/16 – 7/15). Progressive declines in herbaceous understory as a source of forage or nesting cover would be expected prior to nesting with further reductions occurring throughout the remainder of the breeding season. Reductions in effective ground cover may indirectly affect nesting outcomes by increasing the susceptibility of incubating or brooding hens and their clutches to predation or extremes in temperature or precipitation. This impact would be most pronounced for ground nesting species associated with open shrubland and grassland habitats, particularly in those areas that experience more prolonged, and concentrated livestock use (valley bottoms, toe slopes, areas in close proximity to water). Species that are more closely associated with sage-steppe shrub canopies, mountain shrub habitats and pinyon-juniper woodlands – which make up the majority of habitat within these pastures - are less apt to be influenced by reductions in herbaceous ground cover and incidental disruption.

Similarly, use of the Hay Gulch East pasture of the Segar Gulch allotment takes place annually from 4/25 – 6/30. Impacts would be similar to those discussed above for the North Dry Fork allotment.

Grazing use in the Powerline allotment currently takes place throughout the majority of the nesting season (5/16 – 6/30). Approximately 60 percent of the public lands in this allotment are dominated by mixed mountain shrub or pinyon-juniper woodlands and classified as having slopes >35 percent. Because of these terrain features, the woodland communities typically experience only incidental livestock use. Subsequently, those species more closely associated with these communities are likely only minimally influenced by livestock grazing. Bird species more closely associated with open grasslands or shrublands (particularly ground or low shrub

nesters) are likely more susceptible to grazing influences (disruption, trampling). Progressive reductions in herbaceous ground cover throughout the nesting season would be expected, particularly in those areas that experience concentrated livestock use. Nest densities are likely suppressed to a certain degree in these areas.

Raptors
It is unlikely that livestock grazing will have a substantial direct influence raptor nesting activities, even in those pastures that overlap with all or portions of the reproductive period (Segar Gulch, Powerline, North Dry Fork, and, to a lesser degree, Dark Canyon). Livestock use of the woodland slopes, which support the majority of nesting habitat, is generally light. Incidental use by cattle would not be expected to disrupt nesting activities to the extent that it would result in nest failure. Similarly, livestock use in close proximity to cliff nesting species would not be expected to disrupt nesting activities. Indirectly, reductions in herbaceous ground cover or deleterious shifts in understory composition associated with livestock grazing may decrease the abundance of small mammals as a prey source for raptors. Although this would be difficult to determine, it may influence reproductive success for local birds, but would not be expected to have a measurable influence at the population level. Impacts in small mammals would be similar to those discussed for migratory birds as often times many of these species rely on well intact understories.

5.9.4. Direct & Indirect Effects – Permittee's Proposals (Alt B)

Migratory Birds

Powerline Allotment
Proposed use of this allotment will take place throughout the majority of the migratory bird nesting season (5/16 – 6/30) each year. Approximately 89 percent of the allotment is comprised of pinyon-juniper woodlands (47 percent of which are slopes 35 percent or greater), nearly all of which is on BLM-administered lands. Due to the steep terrain, livestock use is likely concentrated on the largely privately-owned areas along the White River, within a few open benches (BLM administered) or along a large pipeline corridor that crosses the allotment. Understory conditions in these concentration areas are typically dominated by grazing tolerant species, annuals, or noxious weeds (houndstongue).

Although this allotment is grazed throughout the majority of nesting season annually, it is unlikely livestock use has a substantial influence on the suite of birds (pinyon-juniper associates) that predominantly nest in the area due to the topographical features. Nest densities for those species associated with more open grassland and sagebrush communities (meadowlark, Brewer's sparrow) are likely reduced to some degree in those areas (<100 acres BLM-administered) that receive more concentrated use. As proposed, grazing use intensity will decrease by 20 percent from current levels. While this may provide for minor improvements in understory conditions, is unlikely the proposed grazing system will allow for substantial improvements as it is grazed yearly throughout much of the growing season and cattle are confined to a small area due to

topography constraints. Because of the minimal amount of BLM acreage involved, it is unlikely this would have influence on those grassland and open shrubland species at the population level.

North Dry Fork Allotment

Use of this allotment would encompass the entire migratory bird nesting season (4/16 – 7/31) and would be grazed annually throughout much of the growing season. As proposed, the allotment would be divided into separate general use areas for each operator. Livestock use would rotate throughout the allotment with each general use area receiving light to moderate use for approximately 15-20 days at varying times of the season (see Tables 13 and 14 for specifics). In general, impacts to migratory birds would include potential trampling of nests (mainly for ground nesting species) and reductions in herbaceous ground cover which provide forage and cover resources for nesting birds. These reductions are likely to be most pronounced in areas where livestock tend to congregate (water sources), or areas that are more easily accessible (open, gentler slopes). Impacts to nesting birds are expected to be greater in those areas with moderate use levels or in those use areas that are used twice in a season (e.g., L1and L5). In theory, this grazing system would be expected to provide a nominal benefit to migratory birds as it allows portions of the allotment a minimal rest/recovery period. However, if the rotation and utilization schedule is not adhered to, there would be no change from the current grazing system where the allotment is grazed annually throughout the majority of the growing season (see discussion in Alternative A). It is suspected that bird densities for grassland or open shrubland species are suppressed to a certain degree due to season-long livestock grazing.

Main Dry Fork

Impacts to migratory birds would not be expected to change drastically as the majority of use takes place outside of the migratory bird nesting season. Any decreases in herbaceous cover will largely take place after most birds have fledged. Additionally, much of the allotment is comprised of steep, pinyon-juniper and mountain shrub dominated slopes that typically are not heavily grazed by livestock. Reductions in use, even during the latter part of the growing season would be expected to move toward improvements in understory conditions over time, particularly in those areas favored by livestock. Livestock use into the fall would be expected to reduce the amount of residual available for the following nesting season, however the grazing schedule allows for unaffected growth throughout the majority of the growing season as well as prior to and throughout nearly all of the migratory bird nesting season. In summary, proposed use of this pasture is not expected to have any substantial direct influence on nesting outcomes (trampling, nest disruption) as use is largely asynchronous with the migratory bird nesting season. Reductions in livestock use intensity would, in the long term, be expected to improve herbaceous ground cover as a source of cover and forage for migratory birds.

Little Hills (North Half of Dark Canyon Pasture)

The north half of the Dark Canyon pasture would be grazed solely during the dormant season (November through early January), avoiding the migratory bird breeding season altogether. The proposed grazing system would allow for unaffected growth throughout the entire growing season as well as the migratory bird reproductive period on an annual basis. Improvements in understory conditions (increases in vegetation height, plant vigor and composition) would

provide better cover and forage resources for migratory birds during the nesting period. Furthermore, eliminating grazing pressure in and along the Dark Canyon channel would be expected to benefit riparian associates such as song sparrow and Lincoln sparrow. The proposed grazing system would essentially allow for unaffected growth or riparian plant species on annual basis.

Segar Gulch Allotment: Grazing use of the Segar Gulch allotment would be similar to what is currently authorized. Livestock grazing would take place throughout the entire migratory bird nesting season every year (4/25 – 10/6). Livestock would rotate throughout the allotment as outlined in Tables 16 and 17. Similar to the neighboring allotments, the Segar Gulch allotment is largely dominated by steep, mountain shrub slopes and pinyon-juniper woodlands that receive only slight use by livestock. Favored areas more amenable to use by livestock (e.g., sagebrush parks and bottoms, grassland ridges), would be expected to receive the heaviest use by livestock. It is likely that nest densities would be suppressed to a certain degree in these areas.

Timber Gulch Pasture: Use of the Timber Gulch pasture would not coincide with the migratory bird nesting season and would not be expected to influence nesting outcomes.

Bear Ridge and Joe Bush Pastures: Use of the Bear Ridge and Joe Bush pastures would coincide with the latter portions of the breeding season in alternating years. Grazing use in these two pastures would not be expected to have a substantial influence on nesting outcomes as reductions in herbaceous ground cover would not likely be realized until birds are nearly fledged.

Hay Gulch Pasture: The most noticeable influence to migratory birds would be in the Hay Gulch pasture as use would be coincident with nearly all of the migratory bird reproductive season in alternating years (south and north). The progressive decline in ground cover, both as foraging substrate and supplemental nesting cover for ground and low brush nesting species, would generally begin in advance of the breeding season and reach maximum levels near the peak of young animals' fledging or emergence. It is likely that the reproductive success and recruitment of local breeding populations would be suppressed in favored areas more amenable to thorough cattle use (e.g., sagebrush parks and bottoms, grassland ridges). Approximately 52 percent of the Hay Gulch pasture is comprised of slopes greater than 35 percent. These steeper pinyon-juniper and mountain shrub dominated slopes tend to receive slight use by livestock due to limited forage availability and terrain features. As such, those woodland and mixed mountain shrub associates are likely not substantially influenced by grazing during the reproductive period.

As proposed, the south use area would now be grazed during the growing season. Overall use intensity in this area would decrease by 55 percent in odd years and increase by 36 percent in even years. However the north use area would benefit from a 12 percent reduction in use in odd years and a 74 percent reduction in even years. Although this would likely have minimal influence on the majority of birds that nest in the Hay Gulch pasture (pinyon-juniper and mountain shrub associates), it would certainly be expected to lead toward improvements in understory conditions (increase plant vigor and reproductive capability), especially in the narrow valley bottoms of the north use area that currently receives heavy growing season livestock use.

Overall this alternative would be expected to benefit those ground or low shrub nesting species within these use areas.

Raptors
Impacts to raptors would be similar to those discussed above under Alternative A.

5.9.5. Direct & Indirect Effects – No Livestock Grazing (Alt C)

Removal of livestock use from these allotments would allow for the full development of ground cover expression and would ostensibly provide sustained optimal habitat conditions for migratory bird reproductive functions across approximately 38,910 acres of public land. It is unlikely there would be any substantial improvements in vegetative condition in those roughly 781 acres where historical concentrated livestock use has converted the plant community to one dominated by invasive, annuals (cheatgrass). Improvements in understory condition would be most noticeable, and would likely provide the greatest benefit to nesting birds in the approximately 18,753 acres of mid seral and 6,351 acres of late seral communities.

5.10. Terrestrial Wildlife (Big Game)

5.10.1. Analysis Issues

- Would livestock grazing result in substantial competition for forage with big game?
- Would occupation of the pasture/allotment by livestock result in displacement of big game?
- Do the existing pasture/allotment fences meet current BLM fence standards for wildlife-friendly fences?

5.10.2. Affected Environment

The project area encompasses a wide range of elevation and vegetative community types. Elevation within the allotments/pastures ranges from 5,800 – 8,300 feet and are largely comprised of steep, mountain shrub, pinyon-juniper and Douglas fir dominated slopes interspersed with narrow Wyoming or basin big sagebrush valleys. The lower elevation pinyon-juniper and mixed mountain shrub communities within the North Dry Fork and Powerline allotments are classified by CPW as mule deer severe winter range, a specialized component of winter range that supports nearly an entire herd during the most extreme winters (heavy snow fall and extreme temperatures. These areas typically receive the heaviest use from January through April. Nearly all of the higher elevation Segar Gulch south allotment (Joe Bush, Timber Gulch, and Bear Ridge) is classified by CPW as mule deer summer range. These ranges are most heavily occupied from May through October. The remaining allotments are classified as general winter range and are largely occupied from October through May.

The distribution and abundance of small mammal populations are poorly documented within the Resource Area. Trapping efforts undertaken throughout Piceance Basin in 2010 indicate a high tendency in both sagebrush and pinyon-juniper communities for more generalized species such

as deer mouse and least chipmunk and it is suspected that these species would be relatively abundant in the project area. Non-game populations associated with these upland communities, particularly dense mountain shrub basins that retain more fully developed understories, likely occur at densities that approach habitat potential. There are no small mammal species that are narrowly endemic or highly specialized species known to inhabit the project area.

5.10.3. Direct & Indirect Effects – Current Management (Alt A)

The current grazing schedule has little influence on seasonal big game use of the Main Dry Fork and Powerline allotments and Hay Gulch pastures (about 40 percent of the permit area).

On allotments south of the Dry Fork, cattle would continue to browse on serviceberry during the fall and winter period concurrent with deer. Woody forage supplies are adequate on these areas to sustain dual use without strong competitive interference. In fact, dual use of serviceberry, particularly after disturbance, would help to maintain a lower stature shrub that would prolong the availability of leaders more easily accessed by big game. Further, there is a reasonable possibility that suppression of serviceberry domination via big game and livestock browsing may contribute to conditions that allow sage-grouse to expand Main Dry For and Dark Canyon basin in the future.

Growing season use would continue in the North Dry Fork allotment with impacts similar to those described in Alternative B. Incidental use of browse would be likely to continue but use attributable to cattle in the late fall and early winter would cease. This situation would be expected to reduce dormant season use on larger diameter leader growth and aid in maintaining shrub productivity and vigor in the long term.

5.10.4. Direct & Indirect Effects – Permittee's Proposals (Alt B)

Concurrent big game and livestock use would occur in the Main Dry Fork, North Dry Fork, Segar Gulch allotments and Dark Canyon pasture. Although use periods are concurrent in the Segar Gulch pasture it is unlikely there would be any substantive forage conflicts. Big game tend to make more efficient use of steeper slopes whereas livestock tend to favor bottomlands or gentler slopes. Similarly there would be some coincident use of the Main Dry Fork allotment and Dark Canyon pasture, particularly during the fall and into the early winter months. On these allotments cattle would continue to make incidental use on serviceberry during the fall and winter period concurrent with deer, but would tend to make greater use of herbaceous ground cover within the valley bottoms. Woody forage supplies are adequate on these areas to sustain dual use without strong competitive interference. It is suspected that there may be some competition for early emergent grasses in the North Dry Fork allotment during the spring period, particularly following severe winters, however there does not appear to be any obvious big game and livestock forage conflicts at the time. As proposed, this allotment will be grazed throughout much of the growing season on an annual basis, similar to what is currently authorized. The rotation schedules outlined in Tables 13 and 14 may provide minimal improvements in understory conditions if schedules are adhered to properly. In general, Alternative B would not be expected to negatively influence big game populations.

Grazing-related impacts in small mammals would be similar to those discussed for migratory birds as often times many of these species rely on well intact understories. Improvements in channel condition would be expected in Dark Canyon and Joe Bush shifts in use periods (see Riparian section 5.7. This would not only benefit nongame species, but all terrestrial wildlife species as well.

Existing infrastructure including fences and water developments can directly and indirectly influence certain wildlife species. Strong reductions in herbaceous cover (as a source of cover and forage) in the immediate vicinity of water developments may suppress densities of nongame mammals and birds. Fences, especially those that are either too high/low, have loose wires, impede passage, or are difficult for animals to see, can pose a problem to wildlife. Big game (both adults and young) may become entangled which may result in injury or death. Birds, particularly larger, low flying species may collide with wires, resulting in injury or death. To the BLM's knowledge, there have been no reports that the fences within the allotment have posed a problem for wildlife.

5.10.5. Direct & Indirect Effects – No Livestock Grazing (Alt C)

Removal of livestock use from the allotment would allow for the full expression of herbaceous ground cover and would be expected to benefit big game and nongame species throughout the entire allotment (exactly 38,910 acres of public land). Most noticeable improvements would be expected in the roughly 15,257 acres of mid seral communities. Improvements and increases plant density, vigor, reproductive capability and species composition would be expected and would be likely provide greater forage and cover resources for both big game and nongame species. It is unlikely there would be any substantial improvements in vegetative condition in those roughly 768 acres where heavy livestock use has converted the plant community to one dominated by invasive, annuals (cheatgrass). Of particular benefit would likely be those riparian areas currently influenced by grazing (Dark Canyon, Post Gulch, and Joe Bush Gulch – see Riparian Areas and Aquatic Wildlife section 5.7).

5.10.6. Finding on Public Land Health Standard 3 – Animal Communities

Standard #3 is largely being met for terrestrial wildlife communities at the landscape level. While there are inclusions of annual dominated communities throughout the allotments (roughly one to three percent) that are not considered to be meeting land health standards, it does not detract from providing big game and nongame species the appropriate cover and forage resources. In nearly all allotments, Alternative B would be expected to benefit terrestrial wildlife species, albeit minimally in some cases (e.g., North Dry Fork).

5.11. Special Status Animal Species (Sage-Grouse)

5.11.1. Analysis Issues

- Would livestock grazing impair meeting sage-grouse habitat objectives (such as sagebrush cover and conformation or herbaceous understory cover and height)?

- Would fences contribute to increased mortality due to either collisions or perches for nest predators?

5.11.2. Affected Environment

(Note: Brewer's sparrow and northern goshawk are discussed in the Raptors and Migratory Birds section. Flannelmouth sucker and northern leopard frogs are discussed the Riparian Areas and Aquatic Wildlife section.)

Based on the 2015 Northwest Colorado Greater Sage-Grouse Approved Resource Management Plan Amendment (NW CO ARMPA), greater sage-grouse habitat has been classified into two types: 1) priority habitat management areas (PHMA) and 2) general habitat management areas (GHMA). PHMA is defined in the NW CO ARMPA as those areas having the highest conservation value in maintaining sustainable sage-grouse population. These would include lekking, breeding, later brood-rearing, and winter concentration areas. GHMA is defined in the NW CO ARMPA as lands that require some special management to sustain greater sage-grouse populations. Sage-grouse habitat requirements typically vary depending on season of use. Roughly 80 percent of nesting occurs within four miles of leks (Colorado Greater Sage-Grouse Steering Committee). Greater sage-grouse populations generally require large expanses of intact sagebrush habitat (Connelly et al. 2004). Sage-grouse nests are typically found under shrubs with larger canopies and within of stands greater shrub canopy cover (Connelly et al. 2000). Height and structure of herbaceous vegetation is an important component in nesting habitat and can influence sage-grouse nest site selection, nest success, and chick survival. Productive nesting areas are typically characterized by continuous sagebrush of the appropriate height and shape, with an understory of native grasses (typically bunchgrasses) and forbs, with a horizontal and vertical structural diversity that provides herbaceous forage for pre-laying and nesting hens, concealment from predators during the nesting period, and an insect prey base. Adequate residual herbaceous cover is also an important component as it provides concealment from predators during the early nesting period. Succulent forbs and mesic areas are important during the summer and late-brood rearing period. Both shrub canopy and grass cover are important for reproductive success. Sage-grouse begin nesting from mid-April through mid-May with chicks appearing from mid-May through mid-July; peaking from mid to late June.

The Dark Canyon pasture contains approximately 50 acres of PHMA. Virtually none of the acreage mapped as PHMA is capable of supporting grouse (due to steep slopes and forested habitat), and is largely an artifact of more generalized mapping techniques. The southern portion of this allotment, which is authorized under a different permit renewal, supports a 1-2 bird lek. There are no active leks in the north half of the allotment.

The Main Dry Fork allotment contains roughly 520 acres of PHMA and 2,360 acres of GHMA. Similar to the Dark Canyon allotment, the majority PHMA are steep slopes dominated by pinyon-juniper and mixed mountain shrub communities (largely serviceberry), which would not be expected to support substantial numbers of sage-grouse. Based on cover type and topography, roughly 230 acres of mapped PHMA has the potential to support sage-grouse. Much of this sagebrush acreage has a moderate serviceberry and Gambel oak component, which likely further

reduces its utility to support grouse. It is extremely unlikely that any of the GHMA within this allotment support grouse as it is largely comprised of forested slopes. There are no active leks in this pasture. The nearest active lek is less than two miles away and has supported 1-2 birds in the past several years. This small population is heavily influenced by oil and gas development.

5.11.3. Direct & Indirect Effects – Current Management (Alt A)

Impacts to sage-grouse would be similar to those described in Alternative B as livestock use would be nearly identical to that of Alternative B.

5.11.4. Direct & Indirect Effects – Permittee's Proposals (Alt B)

The potential for livestock grazing in the Main Dry Fork allotment to interfere with grouse reproduction and recruitment would be reduced to minimal proportions. Most broods would be hatched by the time cattle were introduced and declines in herbaceous cover would be minor over the first several weeks of brood period when supplemental cover is most important for concealment of flightless chicks. Although there is minimal coincident use, the proposed grazing schedule would reduce use by about 20 percent every other year. This would be expected to improve understory conditions over time, which would likely benefit grouse. Although reductions in residual cover would be expected, herbaceous understory would be allowed to develop throughout the entire nesting season without grazing influences. There is a reasonable possibility that dual big game and cattle use during the fall months may contribute to suppression of serviceberry domination on nearly 200 acres of ridgeline, which over time may promote increased use by sage-grouse.

It is unlikely existing infrastructure (e.g., fences) pose a substantial collision risk to sage-grouse. Stevens et al. (2012) showed that topography (more open terrain) fence density, and distance to nearest lek (within 2 km) influence potential for collision. The nearest fence associated with this allotment is approximately 1.6 miles from an active lek and is separated by rugged terrain (several ridges removed). Potential for collision is likely extremely low.

Incorporating thresholds and responses established to meet greater sage-grouse habitat objectives would be expected to maintain (short-term) or improve habitat conditions for greater sage-grouse. Adjusting either the grazing schedule or livestock numbers in response to environmental conditions (e.g., drought) and removing livestock when utilization thresholds have been met would enhance understory conditions over time. Increased plant vigor and reproductive potential, improvements in plant species composition (increase in perennial plant species), increased litter and a decrease in bare ground would be expected under this alternative if described assessments, monitoring and responses are conducted and employed.

5.11.5. Direct & Indirect Effects – No Livestock Grazing (Alt C)

Removing livestock grazing would allow for full vegetation expression on the roughly two hundred acres of suitable sage-grouse habitat throughout the growing season and sage-grouse reproductive period. This may result in increased nesting success however, it is unlikely to have any measureable influence on this population as this population is heavily influence by oil and

gas development in the surrounding area in addition to being limited by topographical features (steep pinyon and juniper and mixed mountain shrub dominated slopes).

5.11.6. Finding on Public Land Health Standard 4 – Special Status Species

Standard #4 is largely being met for special status animals at the landscape level, and would be similar the discussion in the Terrestrial Wildlife section for Standard #3. With regards to sage-grouse, only the Main Dry Fork allotment supports grouse habitat. Under Alternative B, use in this allotment would be reduced by an overall average of four percent which would be expected to improve, or at the very least, maintain habitat conditions. Alternative B would not be expected to detract from continued meeting of Standard #4.

5.12. Special Status Plant Species

5.12.1. Analysis Issues

- Would livestock grazing limit the ability of the Dudley Bluffs twinpod to persist and reproduce?

5.12.2. Affected Environment

There are two populations of Dudley Bluffs twinpod (*Physaria obcordata*) that currently exist and one population that is believed to be extirpated within the North Dry Fork grazing allotment. Dudley bluffs twinpod is listed as threatened under the Endangered Species Act (ESA). This species is restricted primarily to barren shale outcrops of the Thirteen Mile Creek Tongue of the Green River Formation on steeply-sloped surfaces, though some occurrences have been documented on the Parachute Creek Member of the Green River Formation. Oil and gas development, solid mineral extraction, off-highway vehicle use, invasive species, and grazing have been identified as threats to the species (FWS 2008).

The Alkali Flat East twinpod population was field visited by BLM staff (seasonal ecologist and rangeland management specialist) in May 2013. Occupied habitat was confirmed on slopes over 100 percent slope. The population is located well over half way up the slope. The Alkali Flat East twinpod population is approximately 2.3 acres in size.

The Piceance State Wildlife Area (SWA) West population, which is located on Colorado Parks and Wildlife (CPW) land about 1 mile southeast of County Road 5, was surveyed thoroughly in 2012. No Dudley Bluffs twinpod was found in the Piceance SWA West area by surveyors and it is believed to have been extirpated, perhaps by a fire which burned through the area since the population was first discovered by the Colorado Natural Heritage Program (CNHP) in 2008. The exact reason why the population no longer exists is unknown.

The Piceance SWA East twinpod population, also located on CPW land, was surveyed in 2008. This population is located on steep shale slopes and is estimated to be 7.4 acres in size.

5.12.3. Direct & Indirect Effects – Current Management (Alt A)

Impacts from livestock on plant populations primarily include grazing and trailing/trampling of plants. Placement of temporary stock tanks that create congregation areas, and traditional livestock trailing near populations has some trampling and grazing impacts on plants. Continued use of these areas creates continued potential for trampling/trailing to occur through populations. Livestock also have the potential to act as a vector for spreading noxious weeds, and may introduce weeds into populations of special status plants that will then compete with them for resources. The Piceance SWA East population currently has leafy spurge and cheatgrass present adjacent to the population, and livestock use has the potential to introduce weeds into those populations.

After reviewing livestock effects to the Dudley Bluffs twinpod populations, the BLM determined in the Biological Assessment for the Shultz/Lopez grazing permit renewal that the Proposed Action "may affect, is likely to adversely affect *Physaria obcordata*."

On July 30, 2015, the BLM received written concurrence from the FWS with the determination that the proposed permit renewal may affect, is likely to adversely affect *Physaria obcordata*, but will not jeopardize the continued existence of the *Physaria obcordata* species. The FWS reached this conclusion based on the BLM and permittees' commitment to conservation measures designed to avoid or minimize impacts from the grazing programs and activities on *Physaria obcordata.*

5.12.4. Direct & Indirect Effects – Permittee's Proposals (Alt B)

Impacts from livestock grazing on Dudley Bluffs twinpod would be the same as those identified in Alternative A.

5.12.5. Direct & Indirect Effects – No Livestock Grazing (Alt C)

The no grazing alternative would alleviate livestock grazing related impacts to these populations of Dudley Bluffs twinpod. No trampling or grazing of special status plants by livestock would occur.

5.12.6. Finding on Public Land Health Standard 4 – Special Status Species

The land health standards for special status plant species are currently being met. Monitoring data shows that plant populations are stable. There are some minimal impacts to some populations from livestock trailing, and some noxious weeds (cheatgrass and leafy spurge) are present adjacent to the populations and pose a potential risk to plants. The Proposed Action as mitigated, is expected to maintain and/or enhance health of populations into the future.

5.12.7. Mitigation Measures and Residual Impacts

See conservation measures developed as part of the Formal Section 7 consultation with the FWS completed in July of 2015 (BO # ES/GJ-6-CO-15-F-004) listed above in section 3.2.3.

5.13. Cultural Resources

5.13.1. Analysis Issues

- Would livestock grazing result in adverse effects to cultural resources that are either eligible for listing on the National Register of Historic Places or known to be important to Indian tribes?

5.13.2. Affected Environment

Grazing permit renewals are undertakings under Section 106 of the National Historic Preservation Act. Range improvements associated with the allotment (e.g., fences, spring improvements) are subject to compliance requirements under Section 106 and also undergo separate standard cultural resources inventory and evaluation procedures. During the combined Section 106 and NEPA review, cultural resource assessments were completed for the North Dry Fork, Main Dry Fork, Segar Gulch and Powerline allotments (Table 36).

Powerline Allotment
Twenty percent of the Powerline Allotment has been previously surveyed for cultural resources. Broken down by land ownership, 14 percent of BLM land and 34 percent of the private land has been previously surveyed. Of the four known cultural resources in the Powerline allotment, none of the sites are eligible for the National Register of Historic Places. The allotment does not contain any known livestock concentration areas. The allotment also features steep topography along the southern end, and would not require cultural survey. Based on the low density of sites and lack of identified historic properties, the potential for historic properties in the Powerline Allotment is low.

North Dry Fork Allotment
Approximately nine percent of the entire allotment has been previously surveyed for cultural resources. Of this, eight percent of BLM land has been surveyed. The North Dry Fork Allotment contains 45 known cultural resources. Of these resources, six sites are eligible for the, seven sites are classified as Needs Data, three sites segments are designated as supporting the eligibility of a larger linear resource, and one site remains unevaluated.. Known historic properties include prehistoric open camps and sheltered camps, as well as historic rock art, trails, and a road. Based on the results of previous inventories, this allotment has a high potential for cultural resources.

Main Dry Fork Allotment
Twelve percent of the entire Main Fork Gulch Allotment has been previously surveyed. BLM land comprises 88 percent of the allotment; of that land, 11 percent has been surveyed for cultural resources. Of the seven previously recorded cultural sites, only one prehistoric rock art site is potentially eligible.

Dark Canyon Pasture of Little Hills Allotment
No archaeological sites are known to exist within this pasture.

Segar Gulch Allotment

The Segar Gulch Allotment consists of almost entirely BLM land (99 percent). Seven percent of the allotment has been surveyed for cultural resources. The only cultural resource known to exist in the allotment is a non-eligible historic cabin.

Table 35. Cultural Resources Assessment Summary

Allotment	Percent of Allotment Previously Inventoried	Number of Sites Known in Allotment	High Potential of Historic Properties	Number of Historic Properties to be Visited	Management Recommendations
Powerline	~20%	3	No	0	No further inventory will be required for this project; however, inventory may be required before any future range improvement projects. Unknown cultural resources may still be present. If found in future survey, all needs data or eligible historic resources will be monitored for impacts. Mitigation and treatment will be applied as concerns are identified.
North Dry Fork	~ 9 %	30	Yes	9	The known cattle concentration areas should be surveyed within the timeframe of this permit. In addition, the nine historic properties (5RB.203, 5RB.204, 5RB.215, 5RB.739, 5RB.744, and 5RB.7263) should be revisited within the 10 year permit to monitor for grazing impacts.
Main Dry Fork	~712%	4	Yes	0	The known cattle concentration areas should be surveyed within the timeframe of this permit. While not listed as a historic property, Site 5RB.890 should be revisited to be re-evaluated and to determine if site is being impacted by livestock grazing.
Dark Canyon Pasture of the Little Hills Allotment	~163%	5	No	0	The known cattle concentration areas should be surveyed within the timeframe of this permit.I Inventory may be required before any future range improvement projects. Unknown cultural resources may still be present. If found in future survey, all needs data or eligible historic resources will be monitored for impacts. Mitigation and treatment will be applied as concerns are identified.

Segar Gulch	~7%	1	No	0	The known cattle concentration areas should be surveyed within the timeframe of this permit.. Inventory may be required before any future range improvement projects. Unknown cultural resources may still be present. If found in future survey, all needs data or eligible historic resources will be monitored for impacts. Mitigation and treatment will be applied as concerns are identified.

5.13.3. Direct & Indirect Effects – Current Management (Alt A)

The direct impacts that occur during normal livestock grazing activity include trampling, chiseling, and churning of site soils, cultural features, and cultural artifacts, artifact breakage, and impacts from standing, leaning, and rubbing against historic structures, above-ground cultural features, and rock art (Osbourn et al. 1987). Indirect impacts include soil erosion, gullying, and increased potential for unlawful collection and vandalism (Osbourn et al. 1987). The impacts are more likely to occur where livestock concentrate. Fieldwork to date shows that in most allotments, livestock concentration areas are found near water or salting sources, or areas where animals bed down, and are the main areas where archaeological sites may be impacted. However another concern is the high percentage of rock art sites on cliff faces where livestock naturally take refuge from the sun. Livestock rub or defecate on the rock art, which can fade or even destroy rock art.

A cultural survey of the North CC Trail maintenance project was completed September 2, 2014 and there would be no effect to cultural resources and thus there would be no specific mitigation measures needed for this maintenance. Continued livestock use in these concentration areas may cause substantial ground disturbance and cause irreversible adverse effects to historic properties. Continued livestock management is appropriate, as long as identified grazing impacts are properly mitigated.

5.13.4. Direct & Indirect Effects – Permittee's Proposals (Alt B)

Alternative B is not expected to differ substantially from Alternative A in terms of its effect to cultural resources.

5.13.5. Direct & Indirect Effects – No Livestock Grazing (Alt C)

While a no grazing alternative alleviates potential damage from livestock activities, cultural resources are constantly being subjected to site formation processes or events after creation (Binford 1981, Schiffer 1987). These processes can be both cultural and natural and take place in an instant or over thousands of years. Cultural processes include any activities directly or indirectly caused by humans. Natural processes include chemical, physical, and biological processes of the natural environment that impinge and or modify cultural materials.

5.14. Cumulative Impacts Analysis

5.14.1. Analysis Areas

The geographic extent of cumulative impacts varies by the type of resource and impact. The timeframes, or temporal boundaries, for those impacts may also vary by resource. Different spatial and temporal cumulative impact analysis areas (CIAAs) have been developed and are listed with their total acreage in Table 36.

Table 36. Cumulative Impact Analysis Areas by Resource

Resource	CIAA	Total CIAA Acreage	Temporal Boundary
Geology and Minerals; Livestock grazing; Vegetation; Soils; Terrestrial Wildlife; Migratory Birds	Public lands within the Powerline, North Dry Fork, Main Dry Fork, and Segar Gulch allotments and the north half of the Dark Canyon Pasture of the Little Hills allotment	38,910 acres of BLM administered public lands	Through the term of the grazing permits.
Special Status Animal Species	Public lands within the Main Dry Fork allotment that have been mapped as general and priority habitat.	Approximately 2,395 acres of general habitat and 550 acres of priority habitat, in the Main Dry Fork allotment and approximately 40 acres of priority habitat in the N ½ of the Dark Canyon pasture.	Through the term of the grazing permits.
Special Status Plant Species	Public lands within the North Dry Fork and Hay Gulch allotments that have been mapped as having potential or occupied habitat for special status plants.	North Dry Fork allotment – 19 acres, Main Dry Fork allotment 4.8 acres, Segar Gulch allotment 36.2 acres	Through the term of the grazing permits.
Cultural Resources	Public lands within the Powerline, North Dry Fork, Main Dry Fork, and Segar Gulch allotments	1,599 acres	Impacts to the regional cultural resource database from this action would be permanent, resulting in an ongoing cumulative loss of scientific data.

5.14.2. Past, Present, and Reasonably Foreseeable Future Actions

Cumulative effects are defined in the CEQ regulations (40 CFR 1508.7) as "...the impact on the environment that results from the incremental impact of the action when added to other past,

present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

Other Grazing within the Allotments

In the North Dry Fork and Main Dry Fork allotments approximately 200 of Cross Slash Four cattle are trailed through on a designated route early each June. Both Shults Ranch and Mr. Lopez trail cattle from the North Dry Fork to the Main Dry Fork allotment as they progress through their grazing schedules. Livestock trailing associated with these allotments has been analyzed in the White River Field Office Livestock Trailing EA (CO-110-2012-0031-EA).

The Dark Canyon pasture of the Little Hills allotment is divided into two use areas where the Burke Brothers Ranch graze cattle in the south (upper) half of the pasture and Shults Ranch graze cattle in the north (lower) half of the pasture.

Oil and Gas Development

As of May 2017, the Colorado Oil and Gas Conservation Commission (COGCC) identifies approximately 20 well pads with either producing or shut-in wells within the allotments. In 2015 the BLM published the Oil and Gas Development Proposed RMP Amendment/Final EIS which considered changes in the location, type, and level of oil and gas development within the resource area. These allotments are located within the Mesaverde Play Area (MPA), where it was assumed that full-field development would require two to three pads per section. An estimated 12 acres per pad would be disturbed initially (including areas needed for associated infrastructure) however that would be reduced to 5 acres per pad following interim reclamation (see Table 4-2 of the Final RMPA/EIS). It is assumed that there would be additional roads and utility lines (pipelines and/or power lines) developed to support this activity.

Other Actions

Other past, present, and reasonably foreseeable actions in the project area include vegetation treatments and both wildfires and prescribed burns. Recreation use is characterized by dispersed camping, OHV use, and hunting.

Climate Change

The 2015 Oil and Gas Development Proposed RMPA/Final EIS (page 4-629) summarized some of the potential climate changes that could be expected in the region, including:

- Temperatures are expected to increase more in winter than in summer, more at night than during the day, and more in the mountains than at lower elevations.
- The annual number of days above 90°F and the frequency of extreme heat events could increase.
- Annual average precipitation increased between 5 and 15 percent between 1958 and 2008. Based on modeling using a high emissions scenario, predicted precipitation changes indicate increased precipitation in the winter (up to +15 percent) and substantial decreases in the spring (from -5 percent to -20 percent) and summer (-5 percent to -15 percent). Fall precipitation is predicted to be within -5 percent to +5 percent.
- End-of-summer drought increased during the last 50 years, and drought is expected to be more prevalent in the future.
- More frequent, more severe, and longer-lasting droughts are occurring and are expected to become more prevalent.

- Annual runoff could decrease by 10 to 20 percent by 2041 to 2060, compared to 1901 to 1970.
- Snowfall is predicted to decline in and near the Planning Area.
- Land could have increased susceptibility to fire with more frequent, larger, and more intense fires.

5.14.3. Cumulative Impacts by Resource

Livestock Grazing

Agriculture, road development, oil and gas development, and other land uses that have the potential to impact rangeland management would continue to occur. Past and present livestock use within all grazing allotments addressed by this document has resulted in some areas not meeting Colorado Public Land Health Standards in areas where livestock congregate or historic use was not compatible with meeting these standards. Future livestock grazing as outlined in the Proposed Action (Alt B) would be expected to slightly reduce cumulative impacts to rangeland vegetation or rangelands across the landscape.

Vegetation

Past and current impacts to vegetation in these allotments include grazing induced shifts in plant community composition with associated increases in erosion where soils are disturbed by trailing/trampling, exposed, or lack vegetation with adequate root masses to protect the surface from rain drop impact or overland flow.

Potential effects to vegetation associated with climate change and drought include:

- Increased forage production resulting from elevated atmospheric carbon dioxide (CO2) stimulating plant growth (Morgan et al. 2011; Polley et al 2013)

- Reduced forage quality with increases in deeper rooted perennial forbs (Blumenthal et al. 2013) and cheatgrass (Smith et al) that are favored by increases in atmospheric CO2.

- Increased competitive ability of plants that grow early in the growing season and/or that access deeper soil water (e.g., leafy spurge, diffuse knapweed, and Dalmatian toadflax) (Third National Climate Change Assessment) as a result of warmer wetter winters.

- Increased frequency and severity of drought may change plant species composition, reduce plant cover and increase potential for wind related soil erosion (Third National Climate Assessment).

Soil and vegetation disturbance and noxious weed introduction also occurs in relation to oil and gas development, disbursed recreation and other public land uses. Livestock grazing and these other land uses are expected to continue into the future, and will have varying impacts on vegetation within the overall area associated with these allotments.

Given the nature of noxious and invasive plant species, their continued presence in areas of infestation and progressive spread is expected. It is anticipated that the current land uses will continue further contributing to the spread of noxious weeds. Future weed control efforts by

adjacent private land owners, livestock operators, and the BLM will be necessary to control and reduce the spread of these weeds.

Soil Resources

Future land uses such as oil and gas development and livestock grazing are expected to result in continued varying levels of disturbance, including surface disturbance, truck traffic, drilling, and road building and maintenance actions, all of which impact soils. Dispersed recreation may cause erosion of soils where concentrated use occurs. There are no expected livestock related impacts to subsurface soil permeability characteristics. No other impacts beyond these are expected in the general area covered by this analysis. In general, soil disturbance such as compaction and trailing associated with livestock grazing and other activities are unlikely to reduce soil productivity. Those activities will continue to contribute to a low level of increased erosion and instability of soils in specific locations though proposed grazing schedules would reduce these impacts to some degree.

Riparian Areas and Aquatic Wildlife

Past and present impacts to riparian areas include livestock grazing, oil and gas development, dispersed recreation, and roads with low-water crossings in the riparian areas. All of these activities are expected to continue into the future. Management of livestock grazing under defined grazing schedules may result in improvements in riparian condition. Proposed mitigation actions would allow improvements in those areas and would help identify system potential and specific causal factors. Overall, management of livestock as proposed would be expected to allow for minor diffuse improvements throughout the affected riparian areas and include associated aquatic wildlife.

Surface and Ground Water Quality

Past, present, and reasonably foreseeable future impacts on surface and ground water resources in the project area include livestock grazing and associated range improvement projects, vegetation treatments, and both wildfires and prescribed burns. Recreation use is characterized by dispersed camping, OHV use, and hunting. These cumulative land use activities would be expected to contribute to the observed degradation of the stream channel and floodplains. Any activities impacting the drainage area of the stream network could contribute to the possible degradation by increasing the quantity and rate of runoff which could exacerbate the rate of stream migration (vertically and horizontally).

Terrestrial Wildlife, Raptors, and Migratory Birds

In addition to grazing, infrastructure associated with fluid mineral extraction (well pads, roads, pipelines etc.) is dispersed throughout the project area, with more concentrated development occurring in the southern portion of the Main Dry Fork allotment. These activities result in the reduction, modification or complete removal of forage and cover resources for migratory birds. Roughly 3,000 acres of pinyon-juniper were burned in the North Dry Fork allotment in 2004 and are currently comprised of early seral native grasses. This alteration from predominantly woodland to open grassland likely resulted in a change in the suite of birds that use this area.

Both grazing alternatives would result in reductions in herbaceous ground cover as a source of forage and cover resources for big game and nongame species throughout portions of the year. Alternative B likely provides greater improvements in understory conditions; however, there would likely be no measurable influence on big game and nongame populations.

Greater Sage-Grouse

Cumulative impacts would be similar to those discussed in the Migratory Birds and Terrestrial Wildlife sections. Past oil and gas activity likely influenced this small population of grouse. Additionally, increased serviceberry and Gambel oak likely reduces the utility of these sagebrush communities to support strong numbers of grouse. Both alternatives would result in reductions in ground cover, but in general these would occur outside important reproductive timeframes. Thresholds and responses incorporated into Alternative B would be expected to benefit grouse over time.

Special Status Plant Species

Past and present impacts from roads, livestock grazing, recreational use, and oil and gas development have occurred near Dudley Bluffs twinpod populations and are expected to continue into the future. Continued livestock grazing is not expected to add any additional cumulative impacts over what is already occurring in the project area.

Cultural Resources

Past and present land uses such as livestock grazing, recreation, oil and gas development, and foraging by deer, elk, and wild horses are expected to continue to occur in the future. Livestock impacts along with natural processes will continue to occur. All impacts to the regional cultural resource database would be permanent, resulting in an ongoing cumulative loss of scientific data

6. SUPPORTING INFORMATION

6.1. Interdisciplinary Review

Table 37. List of Preparers

Name	Title	Area of Responsibility	Date Signed
Keith Sauter	Hydrologist	Air Quality; Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights	6/7/2016
Matt Dupire	Ecologist	Areas of Critical Environmental Concern; Special Status Plant Species; Forest Management	6/7/2016
Sarah MacDonald	Archaeologist	Cultural Resources; Native American Religious Concerns; Paleontological Resources	8/10/2017
Mary Taylor	Rangeland Management Specialist	Soils; Vegetation; Invasive, Non-Native Species; Wetlands and Riparian Zones; Hazardous Materials; and Rangeland Management	3/21/2015

Name	Title	Area of Responsibility	Date Signed
Lisa Belmonte	Wildlife Biologist	Migratory Birds; Special Status Animal Species; Terrestrial and Aquatic Wildlife;	8/5/2016
Aaron Grimes	Outdoor Recreation Planner	Wilderness; Visual Resources; Access and Transportation; Recreation,	6/9/2016
Bob Klages	Fuels Specialist	Fire Management	6/6/2017
Paul Daggett	Mining Engineer	Geology and Minerals	7/15/2014
Janet Doll	Realty Specialist	Realty	1/25/2013
Melissa J. Kindall	Range Technician	Wild Horse Management	7/17/2014
Mary Taylor	Rangeland Management Specialist	Project Lead – Document Preparer	3/21/2016
Heather Sauls	Planning & Environmental Coordinator	NEPA Compliance	8/11/2016

6.2. Tribes, Individuals, Organizations, or Agencies Consulted

Throughout the permit renewal process there have been coordination meetings and multiple discussions with the affected permittees as well as coordination with CPW. There have also been meetings, discussions, and site visits with the BLM, the affected permittees, and the FWS.

Formal Section 7 consultation with the FWS was completed in July of 2015, and included the design features/applicant committed conservation measures listed in section 3.2.3. The standard level of consultation with SHPO for grazing permit renewals also occurred. Consultation letters were sent on February 10, 2016, and contact was made with the Eastern Shoshone Tribe of the Wind River Reservation, Ute Indian Tribe of the Uintah and Ouray Reservation, the Southern Ute Indian Tribe and the Ute Mountain Ute Tribe for this project. If additional information comes out in Tribal consultation, aspects of the project may be changed in response to Tribal concerns.

6.3. References

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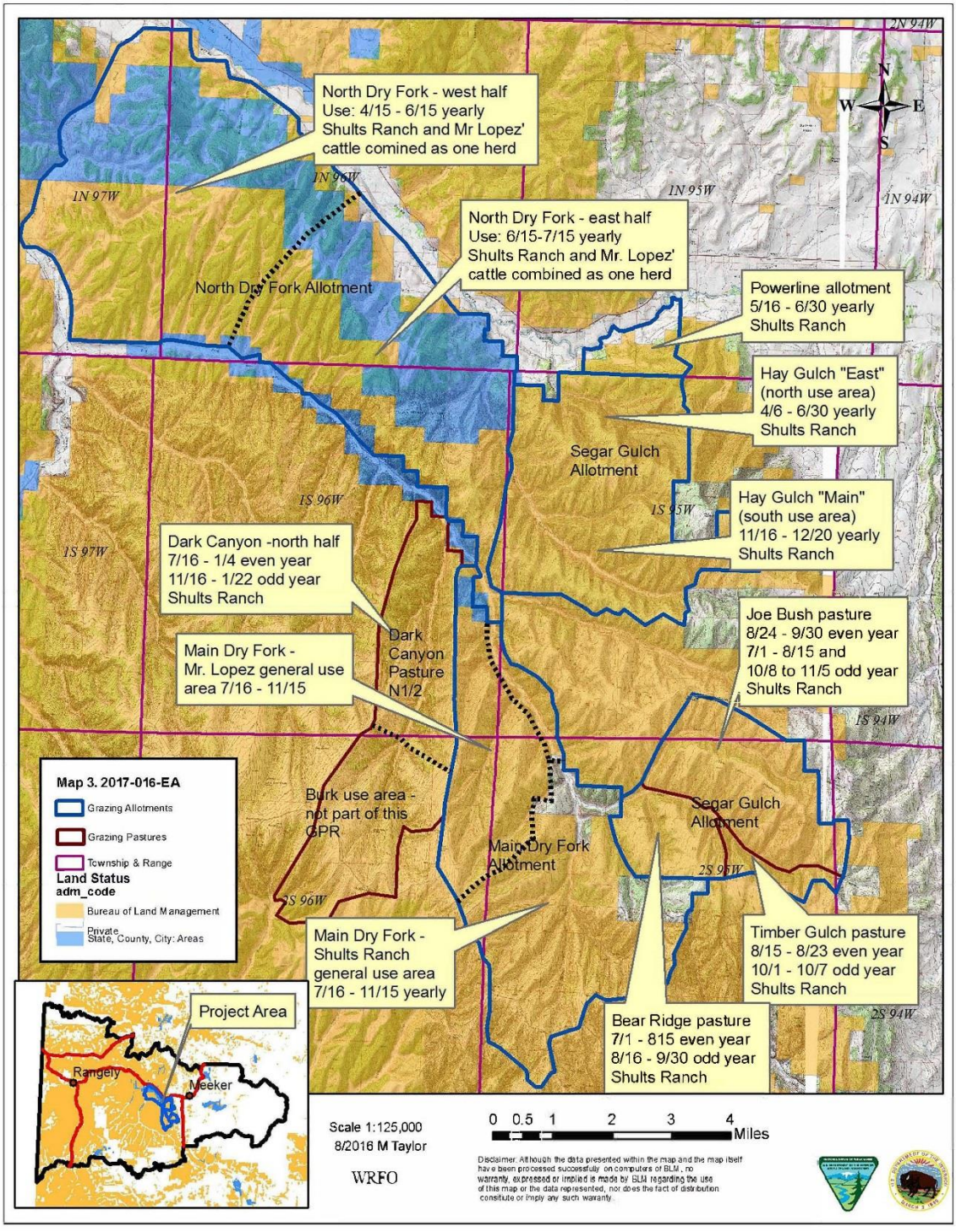
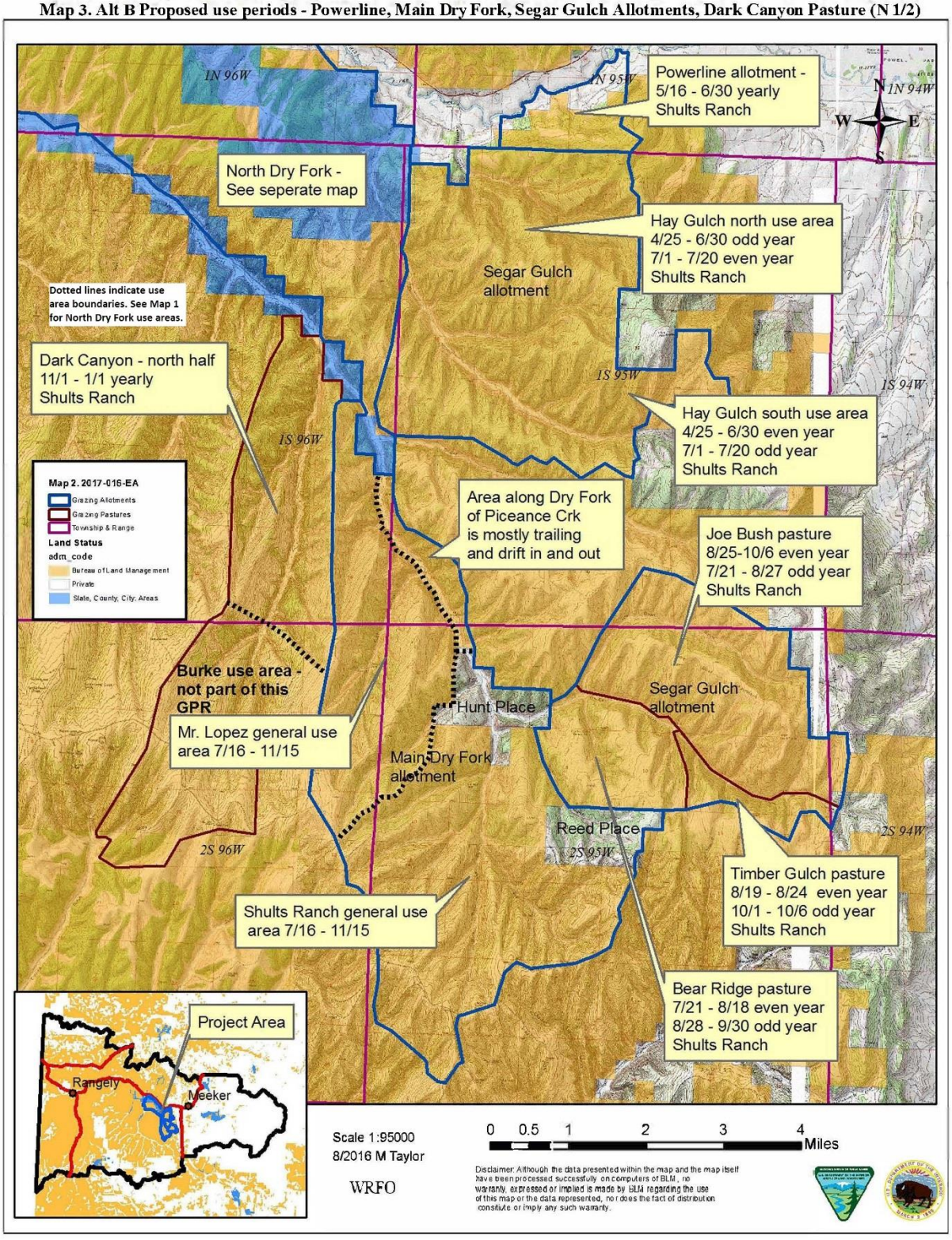
APPENDIX A. MAPS

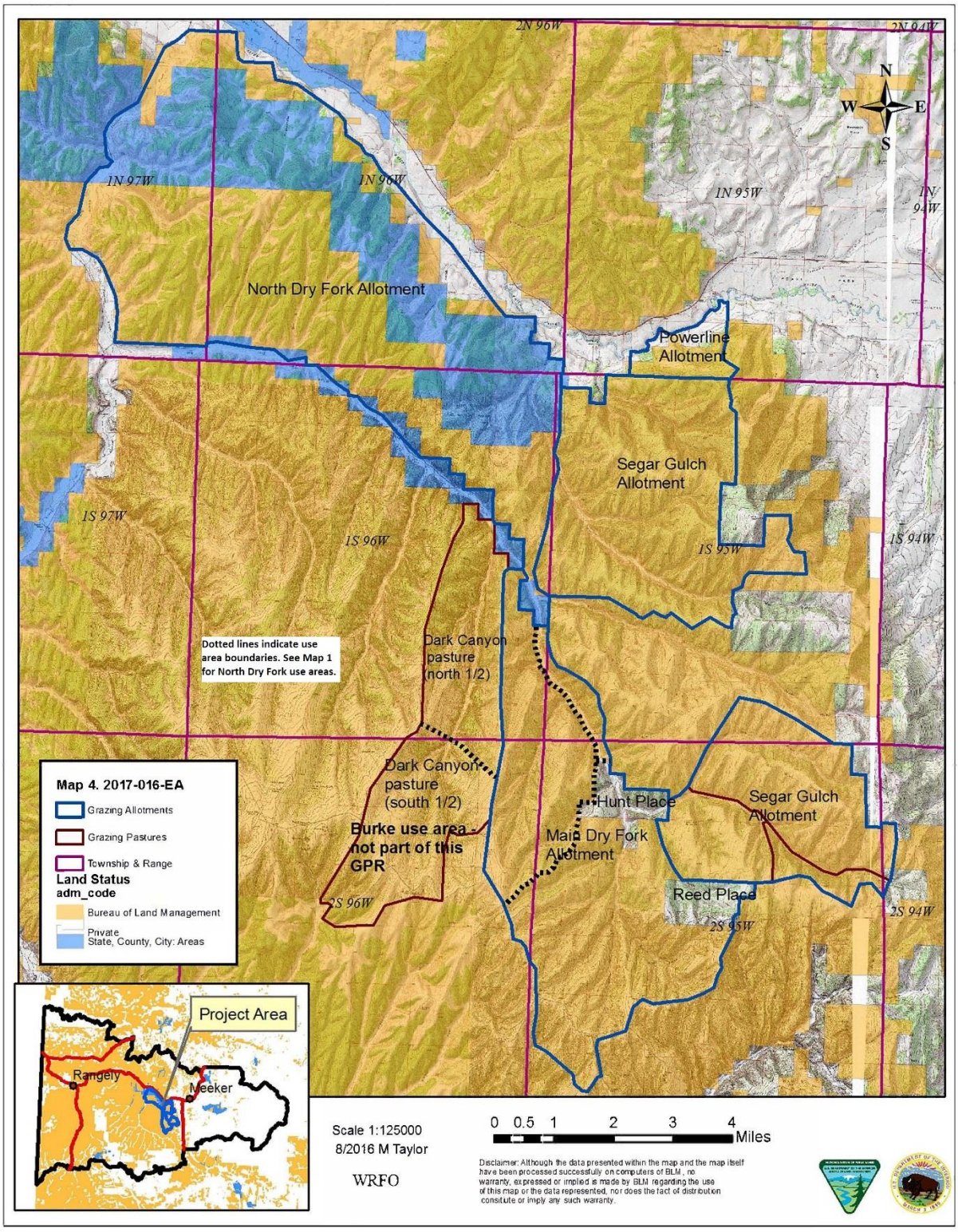
Map 2. Alt. A Current Use Areas and Grazing Schedules -
Powerline, North Dry Fork, Main Dry Fork and Segar Gulch Allotments, Dark Canyon Pasture (north 1/2)



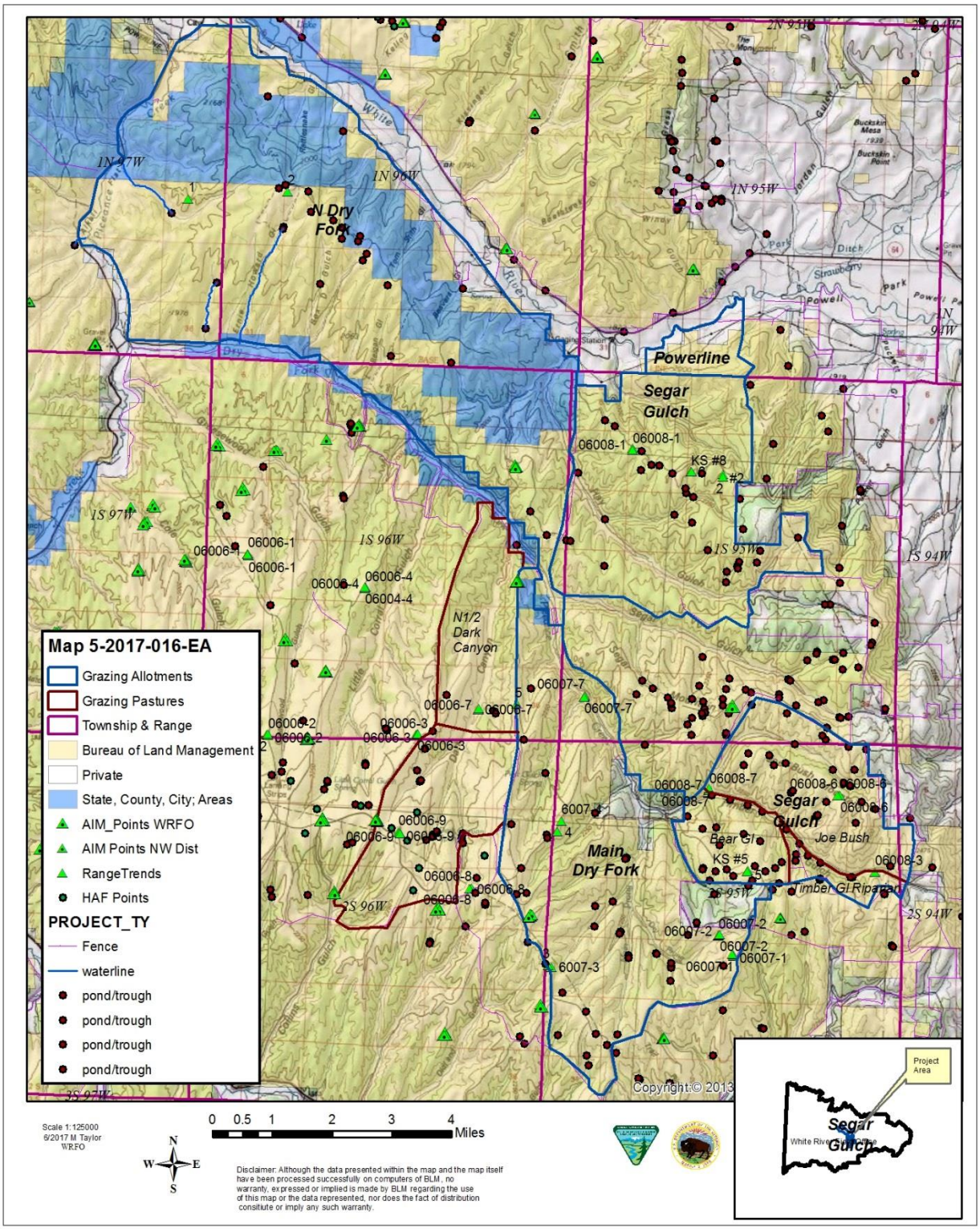
Map 3. Alt B Proposed use periods - Powerline, Main Dry Fork, Segar Gulch Allotments, Dark Canyon Pasture (N 1/2)



Map 4 - Powerline, North Dry Fork, and Segar Gulch Allotments, Dark Canyon Pasture (north 1/2)



Map 5 - Range Improvements (Ponds/Troughs, Waterlines, and Fences) and Monitoring sites



APPENDIX B. STANDARD TERMS AND CONDITIONS

1. Grazing permit or lease terms and conditions and the fees charged for grazing use are established in accordance with the provisions of the grazing regulations now or hereafter approved by the Secretary of the Interior.
2. They are subject to cancellation, in whole or in part, at any time because of:
    a. Noncompliance by the permittee/lessee with rules and regulations.
    b. Loss of control by the permittee/lessee of all or a part of the property upon which it is based.
    c. A transfer of grazing preference by the permittee/lessee to another party.
    d. A decrease in the lands administered by the BLM within the allotment described.
    e. Repeated willful unauthorized grazing use.
    f. Loss of qualifications to hold a permit or lease.
3. They are subject to the terms and conditions of allotment management plans if such plans have been prepared. Allotment management plans MUST be incorporated in permits or leases when completed.
4. Those holding permits or leases MUST own or control and be responsible for the management of livestock authorized to graze.
5. The authorized officer may require counting and/or additional or special marking or tagging of the livestock authorized to graze.
6. The permittee's/lessee's grazing case file is available for public inspection as required by the Freedom of Information Act.
7. Grazing permits or leases are subject to the nondiscrimination clauses set forth in Executive Order 11246 of September 24, 1964, as amended. A copy of this order may be obtained from the authorized officer.
8. Livestock grazing use that is different from that authorized by a permit or lease MUST be applied for prior to the grazing period and MUST be filed with and approved by the authorized officer before grazing use can be made.
9. Billing notices are issued which specify fees due. Billing notices, when paid, become a part of the grazing permit or lease. Grazing use cannot be authorized during any period of delinquency in the payment of amounts due, including settlement for unauthorized use.
10. The holder of this authorization must notify the authorized officer immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (cultural items), stop the activity in the area of the discovery and make a reasonable effort to protect the remains and/or cultural items.
11. Grazing fee payments are due on the date specified on the billing notice and MUST be paid in full within 15 days of the due date, except as otherwise provided in the grazing permit or lease. If payment is not made within that time frame, a late fee (the greater of $25 or 10 percent of the amount owed but not more than $250) will be assessed.
12. No Member of, Delegate to, Congress or Resident Commissioner, after his/her election of appointment, or either before or after he/she has qualified, and during his/her continuance in office, and no officer, agent, or employee of the Department of the Interior, other than members of Advisory committees appointed in accordance with the Federal Advisory Committee Act (5 U.S.C. App. 1) and Sections 309 of the Federal Land Policy and

Management Act of 1976 (43 U.S.C. 1701 et seq.) shall be admitted to any share or part in a permit or lease, or derive any benefit to arise therefrom; and the provision of Section 3741 Revised Statute (41 U.S.C. 22), 18 U.S.C Sections 431-433, and 43 CFR Part 7, enter into and form a part of a grazing permit or lease, so far as the same may be applicable.

13. This grazing permit conveys no right, title or interest held by the United States in any lands or resources.
14. This grazing permit is subject to a) modification, suspension or cancellation as required by land plans and applicable law; b) annual review of terms and conditions as appropriate; and c) the Taylor Grazing Act, as amended, the Federal Land Policy and Management Act, as amended, the Public Rangelands Improvement Act, and the rules and regulations now or hereafter promulgated thereunder by the Secretary of the Interior.

APPENDIX C. RANGE IMPROVEMENTS

Table 38. Existing Water Developments in the North Dry Fork Allotment

Range Improvement Project Name	Number	Type	Condition	Cooperative Maintenance Agreement
Open Gulch Pipeline and Storage	838	water line, storage and troughs	Functional	Yes
Ernie Howard Pipeline and Storage	840	water line, storage and troughs	Functional	Yes
North Dry Fork Piepline and Storage	3069	Water line, storage and troughs	Functional	Yes
North Dry Fork Spring	200505	Spring development and trough	Non-functional	Yes
VT Gulch Spring	200576	Spring	Non-functional	Yes
Rattlesnake Pond	201812	Pond	Functional with water	Yes
Tom Stith Pit	207428	Pond	Non-functional – filled with sediment from burn	Yes
N Dry Fork Pit #1	207423	Pond	Non-functional – full of sediment needs cleaned out	Yes
N Dry Fork Pit # 2	207427	Pond	Non-functional – full of sediment, needs cleaned out	Yes
N Dry Fork Pit # 3	207429	Pond	Functional - CPW well	Yes
N Dry Fork Pit # 4	207430	Pond	Functional – could be cleaned	Yes
N Dry Fork Pit # 5	207431	Pond	Functional – could be cleaned	Yes
N Dry Fork Pit # 6	207462	Pond	Functional – could be cleaned	Yes
N Dry Fork Pit # 7	207433	Pond	Functional – could be cleaned	Yes
N Dry Fork Pit # 8	207434	Pond	Functional – could be cleaned	Yes
N Dry Fork Pit # 9	207436	Pond	Functional – could be cleaned	Yes
N Dry Fork Pit # 10	207438	Pond	Functional – could be cleaned	Yes
N Dry Fork Pit #13	207439	Pond	Functional – could be cleaned	Yes
N Dry Fork Pit # 14	207440	Pond	Unknown – on CPW	Yes
N Dry Fork Pit # 15	207441	Pond	Non-functional - sediment	Yes
N Dry Fork Pit # 17	207442	Pond	Unknown – on CPW	Yes
N Dry Fork Pit # 18	207443	Pond	Unknown	Yes
Reigan Pit # 1	207444	Pond	Functional – could be cleaned	Yes
Riegan Pit #2	207445	Pond	Functional – could be cleaned	Yes
Box D Spring	207549	Spring	Functional	Yes
Rattlesnake Pond	201812	Pond – on CPW	Functional – could be cleaned	Yes

Table 39. Existing Water Developments in the Main Dry Fork Allotment

Range Improvement Project Name	Number	Type	Condition	Cooperative Maintenance Agreement
Dry Fork Spring 1	200198	Spring	Functional – new trough 2004	No
Dry Fork Spring 2	200203	Spring	Unknown at last inspection non-functional	Yes

Jones Gulch Spring	200208	Spring	Unknown – at last inspection poor condition	No
Phoebe Gulch Spring	200574	Spring	Functional	Yes
Dry Fork Res #2	200739	Pond	Unknown	No
Post Gulch Spring	200807	Spring	Functional – inspected 2014	Yes
Dry Fork Spring #3	200809	Spring	Unknown – at last inspection poor condition	Yes
East Prong Spring	200811	Spring	Unknown – at last inspection poor condition	Yes
Upper Dry Fork Spring #1	200813	Spring	Unknown – at last inspection fair condition	Yes
Two Point Spring	200814	Spring	Unknown – new trough 2004	Yes
Dry Prong Reservoir	201956	Pond	Functional	No
Shults Springs 1	203509	Springs	Unknown – at last inspection poor condition	
Main Dry Fork Pit/Res # 1	204702	Pond	Fair – could be cleaned	Yes
Main Dry Fork Pit/Res # 2	204703	Pond	Fair – could be cleaned	Yes
Main Dry Fork Pit/Res # 3	204704	Pond	Fair – could be cleaned	Yes
Main Dry Fork Pit/Res #4	204705	Pond	Fair – could be cleaned	Yes
Main Dry Fork Pit/Res #6	204707	Pond	Fair – could be cleaned	Yes
Main Dry Fork Pit/Res # 7	204708	Pond	Fair - could be cleaned	Yes
M Dry Fork Pit # 2	207515	Pond	Fair – could be cleaned	Yes
M Dry Fork Pit # 3	207516	Pond	Fair – could be cleaned	Yes
M Dry Fork Pit # 4	207517	Pond	Fair – could be cleaned	Yes
M Dry Fork Pit # 5	207518	Pond	Unknown – could not locate	Yes
M Dry Fork Pit # 6	207519	Pond	Fair – could be cleaned	Yes
M Dry Fork Pit # 7	207520	Pond	Unknown – could not locate	Yes
M Dry Fork Pit # 8	207521	Pond	Unknown – could not locate	Yes
M Dry Fork Pit # 9	207522	Pond	Poor – could be cleaned	Yes
M Dry Fork Pit # 10	207523	Pond	Functional – could be cleaned	Yes
M Dry Fork Pit # 11	207528	Pond	Unknown – could not locate	Yes

Table 40. Existing Water Developments in the Segar Gulch Allotment

Range Improvement Project Name	Number	Type	Condition	Cooperative Maintenance Agreement
Left Hand Hay Gulch Well	016545	Well/and Trough	Good	Yes
Timber Gulch SPG 2	200134	Spring	Unknown-Last maintenance 1983	Yes
Timber GL SPR 3	200318	Spring	Unknown-Last Inspection 1980	No

N Timber GL SPR	200217	Spring	Unknown-Last Inspection 1983 Poor Condition	No
Hay Gulch Spring 1	200366	Spring	Good-Last inspection 1980	No
Hay Gulch Spring 2	200369	Spring	Unknown-Last inspection 1980	No
Timbers GL SPR	200454	Spring	Unknown-Last inspection 1980	No
Watkins Spring	200733	Spring	Poor-Last inspection 1980	No
Joe Bush Spring	207544	Spring	Good- Last Phase 2008	Need Co-op from Shults
Joe Bush Spring	201060	Spring	Good- Last Phase 2008	Need Co-op from Shults
Timber Pit #1	201900	Runoff-Pond	Poor, Not visible 1985	No
Timber Pit #2	201901	Runoff-Pond	Good, may need cleaning 1985	No
Timber Pit #3	201902	Runoff-Pond	Very Good 1985	No
Timber Pit #4	201903	Runoff-Pond	Good, last inspection 1985	No
Timber Pit #6	201905	Runoff-Pond	Fair, last inspection 1985	No
Timber Res #1	201906	Reservoir	Good, last inspection 1985	No
Timber Pit #7	201909	Runoff-Pond	Poor, veg needs clearing 1985	No
Brushy Hole Reservoir	201910	Reservoir	Fair, last inspection 1985	No
Joe Bush Pit #1	201911	Runoff-Pond	Unknown, could not locate 1985	No
Joe Bush Res #1	201912	Reservoir	Fair, last inspection 1985	No
Joe Bush Pit #2	201913	Runoff-Pond	Good, may need cleaning 1985	No
Joe Bush Res #2	201918	Reservoir	Fair, last inspection 1985	No
Joe Bush Res #3	201919	Reservoir	Fair, last inspection 1985	No
Joe Bush Pit #3	201920	Runoff-Pond	Could not locate, heavy vegetation 1985	No
Hay Ridge Pit #1	201921	Runoff-Pond	Unable to locate, heavy vegetation 1985	No
Hay Ridge Pit #2	201922	Runoff-Pond	Fair, could heavy vegetation 1985	No
Norman Allot Fence	204247	Fence	Fair Last Inspection 1980	No
N Segar GL Spring	204376	Spring	Fair Last Inspection 1980	Yes
Hay Gulch Well	204393	Well	Good, Last inspection 1980	No
Segar GL Allot Fence	204487	Fence	Last Inspection 1980	No
Timber GL Res 1	204552	Reservoir	Fair Last Inspection 1980	No
Timber GL Res 2	204557	Reservoir	Fair Last Inspection 1980	No
Timber GL Res 3	204558	Reservoir	Fair Last Inspection 1980	No
Timber GL Res 5	204560	Reservoir	Good Last Inspection 1980	No
Timber GL Res 6	204561	Reservoir	Fair Last Inspection 1980	No
Timber GL Res 7	204562	Reservoir	Good Last Inspection 1980	No
Timber GL Res 8	204563	Reservoir	Good Last Inspection 1980	No
Timber GL Res 9	204564	Reservoir	Fair Last Inspection 1980	No
Timber Gulch Fence(s)	204576	Fence (small enclosures around ponds)	Non-functional	No
Kendall Pit #1	207039	Runoff-Pond	Poor Last phase 1990	Yes
Kendall Pit #2	207040	Runoff-Pond	Good Last phase 1990	Yes
Kendall Pit #3	207041	Runoff-Pond	Poor Last phase 1990	Yes

Kendall Pit #4	207042	Runoff-Pond	Poor Last phase 1990	Yes
Kendall Pit #5	207043	Runoff-Pond	Fair Last phase 1990	Yes
Kendall Pit #5	207044	Runoff-Pond	Closed Last phase 1990	Yes
Joe Bush #4	207111	Runoff-Pond	Poor Last phase 1991	Yes
Joe Bush #5	207112	Runoff-Pond	Poor Last phase 1991	Yes
Joe Bush #6	207113	Runoff-Pond	Fair, 1991	Yes
Joe Bush #7	207114	Runoff-Pond	Fair, 1991	Yes
Joe Bush #8	207115	Runoff-Pond	Fair, needs work, 1991	Yes
Joe Bush #9	207116	Runoff-Pond	Fair, needs work, 1991	Yes
Joe Bush #10	207117	Runoff-Pond	Fair, could use cleaning Last phase 1991	Yes
Timber Pit #8	207118	Runoff-Pond	Unknown/Poor, looks deconstructed Last phase 1991	Yes
Timber Pit #9	207119	Runoff-Pond	Poor Last phase 1991	Yes
Timber Pit #10	207120	Runoff-Pond	Good, Last phase 1991	Yes
Timber Pit #11	207121	Runoff-Pond	Good Last phase 1991	Yes
Wagonwheel Pit #1	207446	Runoff-Pond	Good Last phase 2000	Yes
Wagonwheel Pit #2	207447	Runoff-Pond	Poor Last phase 2000	Yes
Wagonwheel Pit #3	207448	Runoff-Pond	Poor Last phase 2000	Yes
Kendall Pit #7	207449	Runoff-Pond	Poor, excessive Veg 2000	Yes
Kendall Pit #8	207450	Runoff-Pond	Poor, not visible 2000	Yes
Kendall Pit #9	207451	Runoff-Pond	Good, Maybe cleaned 2000	Yes
Kendall Pit #10	207452	Runoff-Pond	Poor, not visible 2000	Yes
E Hay Pit #1	207453	Not Found Possibly Not Built		Yes
E Hay Pit #2	207453	Not Found Possibly Not Built		Yes
Timber G Cattleguard	207499	Not Found, possibly removed		No
Bear Gulch Spring #1	207545	Spring	Good, 2003 last Inspection	Yes

Table 41. Existing Water Developments in the Dark Canyon Pasture (north half)

Range Improvement Project Name	Number	Type	Condition	Cooperative Maintenance Agreement
Undocumented pond	n/a	Pond	Poor	none

Table 42. Existing Water Developments in the Powerline Allotment

Range Improvement Project Name	Number	Type	Condition	Cooperative Maintenance Agreement
None – all water on private	n/a	n/a	n/a	n/a

Table 43. Existing Fences in the North Dry Fork Allotment

Range Improvement Project Name	Number	Wildlife-Friendly Fence Design?	Condition	Cooperative Maintenance Agreement
Piceance Creek Water Gap	839	Yes	Functional	Yes
Thomas Trail Enclosure	4626	No	Fair	Yes
Dry Fork Fence	4626	No	Fair	Yes
Ernie Howard Pipeline and Storage	840	n/a	Functional	Yes
North Dry Fork Pipeline and Water Storage	13069	n/a	Functional	Yes
CC Drift Fence	20387	Yes	Functional	Yes
VT Truck Trail	200290	n/a	Functional	Yes

Table 44. Existing Fences in the Main Dry Fork Allotment

Range Improvement Project Name	Number	Wildlife-Friendly Fence Design?	Condition	Cooperative Maintenance Agreement
Thomas Allot Fence	204258	Yes	Functional	Yes
Dark Canyon / Dry Fork Allotment Boundary Fence	207412	Yes	Functional	Yes

Table 45. Existing Fences/Trails in the Segar Gulch Allotment

Range Improvement Project Name	Number	Wildlife-Friendly Fence Design?	Condition	Cooperative Maintenance Agreement
CC Drift Fence	20387	Yes	Functional	Yes
VT Truck Trail	200290	n/a	Functional	No
Timber Gulch Fence	000944	Yes	Functional	Yes

Table 46. Existing Fences in the Dark Canyon Pasture (north half)

Range Improvement Project Name	Number	Wildlife-Friendly Fence Design?	Condition	Cooperative Maintenance Agreement
Shults/Burke	Unknown	Unknown	Unknown	none

Table 47. Existing Fences in the Powerline Allotment

Range Improvement Project Name	Number	Wildlife-Friendly Fence Design?	Condition	Cooperative Maintenance Agreement
N/A - 1.8 miles – on private	N/A	Unknown	Unknown	N/A